# OPERATOR'S MANUAL

# Bedknife Grinder

## BG1500

FRONTIER EQUIPMENT™

This book consists of three manuals:

The OPERATORS MANUAL in ENGLISH which contains all the information on operating and doing routine daily maintenance on this equipment.

The ASSEMBLY and SERVICE MANUAL which is used by the maintainence department to install the equipment and to do all maintenance except routine daily maintenance.

The OPERATORS MANUAL in FRENCH which is the same as the English version only translated into French.

(REV. 6/16/2011)

## DEALER PREPARATION/INSTALLATION CHECK LIST

Frontier BG1500 Bedknife Grinder

THIS CHECKLIST IS TO REMAIN IN OWNER'S MANUAL

It is the responsibility of the dealer to complete the procedures listed below, then review this checklist with the customer upon the delivery or the sale of this equipment.The installation training goes over the basic operational functions of the equipment. To ensure adequate training, we require that the following items are reviewed by your John Deere Dealer. Please check off to ensure that you understand the following items before the installation training is complete:

- ☐ 1. Equipment is completely assembled
- ☐ 2. All shields are in place and in good condition.
- ☐ 3. All decals in place and readable.
- ☐ 4. Overall condition good (i.e. paint, welds, electrical)
- ☐ 5. Verify there is sufficient electrical power to operate the machine.
- ☐ 6. Review Operators, Assembly & Service Manuals, and any additional training material if available.
- ☐ 7. Review proper positioning of bedknife
- ☐ 8. Review traverse proximity switch positioning
- ☐ 9. Explain use of setup flags
- ☐ 10. Explain gringing wheel height adjustment.
- ☐ 11. Discuss grinder flood coolant system.
- ☐ 12. Review cleaning/dressing the wheel
- ☐ 13. Review General Maintenance

Dealer's Signature _____

Purchaser's Signature _____

## Safety

IMPORTANT SAFETY MESSAGE FOR OWNERS/OPERATORS OF BEDKNIFE GRINDERS

Safety is a primary concern in the design, manufacture, sale, and use of bedknife grinders. As manufacturer of bedknife grinders, we want to confirm to you, our customers, our concern for safety. We also want to remind you about the simple, basic, and common sense rules of safety when using a bedknife grinder. Failure to follow these rules can result in severe injury or death to operators or bystanders.

It is essential that everyone involved in the assembly, operation, transport, maintenance, and storage of this equipment be aware, concerned, prudent, and properly trained in safety. Always use proper shielding as specified by the manufacturer.

Our current production machines include, as standard equipment, guards or shields for the grinding wheel, safety signs and an operators manuals. Never bypass or operate the machine with any of the guards or safety device removed.

**Read and fully understand all the safety practices discussed on pages 4 and 5 of this manual. All safety rules must be understood and followed by anyone who works with bedknife grinders.**

Before operating a bedknife grinder, an operator must read and understand all of the information in the owner's manual and in the safety signs attached to the product. A person who has not read or understood the owner's manual and safety signs is not qualified to operate the unit. Accidents occur often on machines that are used by someone who has not read the owner's manual and is not familiar with the equipment. If you do not have an owner's manual or current production safety signs, contact the manufacturer or your dealer immediately.

Bedknife grinders are designed for one-man operation. Never operate the grinder with anyone near, or in contact with, any part of the grinder. Be sure no one else, including bystanders, are near you when you operate this product.

Following these simple, basic safety rules, as well as others identified in the owner's manual and in product safety signs, will help minimize the possibility of accidents and increase your productivity in using this product. Be careful and make sure that everyone who operates the grinder knows and understands that it is a very powerful piece of machinery, and if used improperly, serious injury or death may result. The final responsibility for safety rests with the operator of this machine.

**TO THE DEALER:**

Assembly and proper installation of this product is the responsibility of the John Deere dealer. Read manual instructions and safety rules. Make sure all items on the Preparation Check List in the Operator's Manual are completed before releasing equipment to the owner.

**TO THE OWNER:**

Read this manual before operating your Frontier equipment. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all adjustments and operating procedures before attempting to operate the equipment. Replacement manuals can be obtained from your selling dealer.

The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Please observe all safety information in this manual and safety decals on the equipment.

For service, your authorized John Deere dealer has trained mechanics, genuine Frontier service parts, and the necessary tools and equipment to handle all of your service needs.

Use only genuine Frontier service parts.

# SAFETY INSTRUCTIONS

***Safety Awareness Symbols*** are inserted into this manual to alert you to possible ***Safety Hazards***. Whenever you see these symbols, follow their instructions.

The ***Warning Symbol*** identifies special instructions or procedures which, if not correctly followed, could result in personal injury.

The ***Caution Symbol*** identifies special instructions or procedures which, if not strictly observed, could result in damage to or destruction of equipment.

1. **KEEP GUARDS IN PLACE** and in working order.
2. **REMOVE WRENCHES AND OTHER TOOLS.**
3. **KEEP WORK AREA CLEAN.**
4. **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use Grinder in damp or wet locations. Machine is for indoor use only. Keep work area well lit.
5. **KEEP ALL VISITORS AWAY.** All visitors should be kept a safe distance from work area.
6. **MAKE WORK AREA CHILD-PROOF** with padlocks or master switches.
7. **DON'T FORCE THE GRINDER.** It will do the job better and safer if used as specified in this manual.
8. **USE THE RIGHT TOOL.** Don't force the Grinder or an attachment to do a job for which it was not designed.
9. **WEAR PROPER APPAREL.** Wear no loose clothing, gloves, neckties, or jewelry which may get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
10. **ALWAYS USE SAFETY GLASSES.**
11. **SECURE YOUR WORK.** Make certain that the bedknife is securely fastened with the mounts provided before operating.
12. **DON'T OVERREACH.** Keep proper footing and balance at all times.
13. **MAINTAIN GRINDER WITH CARE.** Follow instructions in service section of the Manual for lubrication and preventive maintenance.
14. **DISCONNECT POWER BEFORE SERVICING,** or when changing the grinding wheel.
15. **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure all switches are OFF before plugging in the Grinder.
16. **USE RECOMMENDED ACCESSORIES.** Consult the manual for recommended accessories. Using improper accessories may cause risk of personal injury.
17. **CHECK DAMAGED PARTS.** A guard or other part that is damaged or will not perform its intended function should be properly repaired or replaced.
18. **NEVER LEAVE GRINDER RUNNING UNATTENDED. TURN POWER OFF.** Do not leave grinder until it comes to a complete stop.
19. **KNOW YOUR EQUIPMENT.** Read this manual carefully. Learn its application and limitations as well as specific potential hazards.
20. **KEEP ALL SAFETY DECALS CLEAN AND LEGIBLE.** If safety decals become damaged or illegible for any reason, replace immediately. Refer to replacement parts illustrations in this Manual for the proper location and part numbers of safety decals.
21. **DO NOT OPERATE THE GRINDER WHEN UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR MEDICATION.**

## SAFETY INSTRUCTIONS

**IMPROPER USE OF GRINDING WHEEL MAY CAUSE BREAKAGE AND SERIOUS INJURY.**

**Grinding is a safe operation if the few basic rules listed below are followed. These rules are based on material contained in the ANSI B7.1 Safety Code for "Use, Care and Protection of Abrasive Wheels". For your safety, we suggest you benefit from the experience of others and carefully follow these rules.**

### DO

1. **DO** always **HANDLE AND STORE** wheels in a **CAREFUL** manner.
2. **DO VISUALLY INSPECT** all wheels before mounting for possible damage.
3. **DO CHECK MACHINE SPEED** against the established maximum safe operating speed marked on wheel.
4. **DO CHECK MOUNTING FLANGES** for equal and correct diameter.
5. **DO USE MOUNTING BLOTTERS** when supplied with wheels.
6. **DO** be sure **WORK REST** is properly adjusted.
7. **DO** always **USE A SAFETY GUARD COVERING** at least one-half of the grinding wheel.
8. **DO** allow **NEWLY MOUNTED WHEELS** to run at operating speed, with guard in place, for at least one minute before grinding.
9. **DO** always **WEAR SAFETY GLASSES** or some type of eye protection when grinding.
10. **DO TURN OFF COOLANT** before stopping to avoid creating an out of balance condition.

### DON'T

1. **DON'T** use a cracked wheel or one that **HAS BEEN DROPPED** or has become damaged.
2. **DON'T FORCE** a wheel onto the machine **OR ALTER** the size of the mounting hole - if the wheel won't fit the machine, get one that will.
3. **DON'T** ever **EXCEED MAXIMUM OPERATING SPEED** established for the wheel.
4. **DON'T** use mounting flanges on which the bearing surfaces **ARE NOT CLEAN, FLAT AND FREE OF BURNS.**
5. **DON'T TIGHTEN** the mounting nut excessively.
6. **DON'T** grind on the **SIDE OF THE WHEEL** (see Safety Code B7.2 for exception).
7. **DON'T** start the machine until the **WHEEL GUARD IS IN PLACE.**
8. **DON'T JAM** work into the wheel.
9. **DON'T STAND DIRECTLY IN FRONT** of a grinding wheel whenever a grinder is started.
10. **DON'T FORCE GRINDING** so that motor slows noticeably or work gets hot.

**AVOID INHALATION OF DUST** generated by grinding and cutting operations. Exposure to dust may cause respiratory ailments. Use approved NIOSH or MSHA respirators, safety glasses or face shields, and protective clothing. Provide adequate ventilation to eliminate dust, or to maintain dust level below the Threshold Limit Value for nuisance dust as classified by OSHA.

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**This machine is intended for reel mower bedknife grinding ONLY. Any use other than this may cause personal injury and void the warranty.**

**To assure the quality and safety of your machine and to maintain the warranty, you MUST use original equipment manufactures replacement parts and have any repair work done by a qualified professional.**

**ALL operators of this equipment must be thoroughly trained BEFORE operating the equipment.**

**Do not use compressed air to clean grinding dust from the machine. This dust can cause personal injury as well as damage to the grinder. Machine is for indoor use only. Do not use a power washer to clean the machine.**

## Low Voltage Relay

**The grinder is equipped with a high-low voltage relay which is factory preset at 100-140 VAC. If the power supply line does not deliver 100-140 VAC power under load, the relay will open and trip out the starter. If this occurs, your power supply line is incorrect and must be correct before proceeding further with the grinder.**

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## DAILY MAINTENANCE BY THE OPERATOR

On a daily basis, clean the machine by wiping it off.
On a daily basis, remove all grinding grit from the traverse shafts and tooling bar area.
On a daily basis, check coolant tray fluid level. Fluid must be above the sump.
On a daily basis, inspect the machine for loose fasteners or components.
Contact your company's Maintenance Department if damaged or defective parts are found.

**DO NOT USE COMPRESSED AIR TO CLEAN GRINDING DUST FROM GRINDER.**

# SAFETY INSTRUCTIONS

**PLEASE TAKE SPECIAL NOTE OF THE FOLLOWING WARNING DECALS LOCATED ON THE FRONT AND SIDES OF THE GRINDER.**

**GRINDING WHEEL RPM**

**⚠ CAUTION** **⚠ ATENCIÓN**

**To Avoid Injury:**
-Do not exceed grinding wheel maximum operating speed of 3600 revolutions per minute.

**Para evitar lesiones:**
-No exceda la velocidad de funcionamiento máxima, de 3600 revoluciones por minuto, de la rueda rectificadora.

**SHARP OBJECTS**

**⚠CAUTION**

**To Avoid Injury:**
-Keep hands away from rotating objects

**⚠ATENCIÓN**

**Para evitar lesiones:**
-Mantenga las manos alejadas de los objetos giratorios

**ELECTRICITY**

**⚠ CAUTION**

To Avoid Injury:
-Make sure all electrical power to this machine has been disconnected before removing any electrical panels or covers for maintenance.

**⚠ ATENCIÓN**

Para evitar lesiones:
-Asegúrese de que se haya desconectado por completo el suministro eléctrico de esta máquina antes de retirar los paneles eléctricos o las cubiertas para el mantenimiento.

**GENERAL INFORMATION**

**⚠ CAUTION**

**To Avoid Injury:**
-Read Operator's Manual before operating, servicing, or repairing equipment. Follow all safety rules and instructions. (Manuals are available from your selling dealer.)
-Keep bystanders away from equipment during operation. Keep all shields in place and in good condition.
-Wear all of the appropriate safety equipment specified in the Operator's Manual while operating this machine.
-Always make sure machine is off and all machine movement has stopped before leaving machine.
-Never allow children or untrained persons to operate equipment.

**⚠ ATENCIÓN**

**Para evitar lesiones:**
-Lea el manual del operador antes de la puesta en funcionamiento, del mantenimiento o de la reparación del equipo. Siga todas las reglas e instrucciones de seguridad. (Los manuales se encuentran disponibles a través de su distribuidor).
-Mantenga al personal ajeno alejado del equipo durante el funcionamiento. Mantenga todos los protectores en su lugar y en buenas condiciones.
-Durante el funcionamiento de esta máquina, utilice todos los equipos de seguridad correspondientes especificados en el manual del operador.
-Asegúrese siempre de que la máquina se encuentre apagada y haya dejado de moverse antes de abandonarla.
-Nunca permita que un niño o una persona sin capacitación pongan la máquina en funcionamiento.

**BG1500**

FRONTIER EQUIPMENT

Label Sheet
(English and Spanish)
Part Number 5NT127300
(English and French)
Part Number 5NT127301

# GETTING TO KNOW YOUR GRINDER

## SPECIFICATIONS

| | |
|---|---|
| Traversing Switches | Solid state, non-contacting proximity switches. |
| Overall Width | 61" [155 cm] |
| Overall Height | 58" [148 cm] with door closed, 81" [206 cm] with door open |
| Overall Depth | 32" [82 cm] |
| Weight | 750 lbs. [340 kg] shipping weight 935 lbs. [424 kg] |
| Base Construction | Precision heavy duty reinforced welded steel base |
| Carriage Rails | Precision Ground, Hardened Steel - 1.000 Dia. [25.4 mm] |
| Grind Head Motor | 3/4HP AC Motor, 3450 RPM |
| Sound Level | Less than 75 Dba, |
| Auto Traverse | Belt driven with easy to engage clamp system |
| Tooling | Magnetic Mount for Bed Knife with addition center supports |
| Coolant | Built in flood coolant system. |
| Control System | *Safety grind motor with door interrupt switches<br>*Variable speed traverse control. |

# GETTING TO KNOW YOUR GRINDER

## CONTROL PANEL COMPONENT IDENTIFICATION FOR THE BG1500

Learn the function of each switch and knob on the control panel. As you read and learn about each knob you are encouraged to turn that knob on and view that particular operation. See FIG. 1.

**ALWAYS WEAR PROPER SAFETY EYEWEAR WHEN OPERATING YOUR GRINDER. NEVER TURN ON YOUR GRINDER WITHOUT FIRST PUTTING ON SAFETY EYEWEAR.**

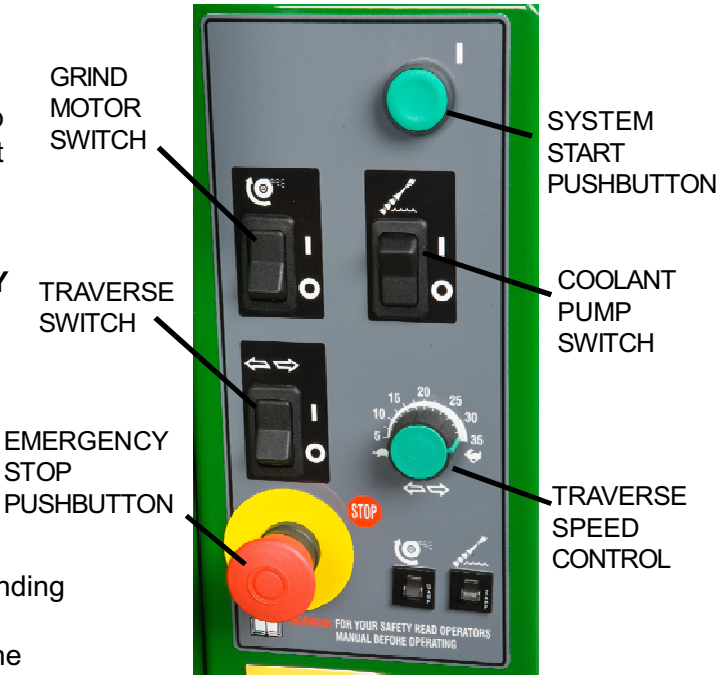



FIG. 1

### EMERGENCY STOP PUSHBUTTON

Push in to cut all power to the control panel functions. This removes power from all motors, including the grinding motor, coolant pump, traverse motor, etc. To restore power, pull up on button and press the Start button. The large button design allows a quick stop of all power in an emergency situation.

### SYSTEM START PUSHBUTTON

The green pushbutton is the system start switch. Pushing it will engage the magnetic starter and power the control panel. The magnetic starter will not engage unless the emergency stop pushbutton is pulled out and the grinding motor switch is turned off.

### GRIND MOTOR SWITCH

The grind motor switch turns the Grinding Wheel Motor on and off.

### COOLANT PUMP SWITCH

The coolant pump switch turns the coolant pump on and off. There is also a valve on the side of the grinding head to control the amount of the flow.

### TRAVERSE MOTOR SWITCH

The travel motor switch turns the traverse motor on and off. It controls the side to side movement of the carriage and grinding head.

### TRAVERSE SPEED CONTROL POTENTIOMETER

This control knob sets the speed of traverse for the grinding carriage. When turned on to minimum, the carriage will stop. When turned to the maximum, the carriage moves back and forth at full speed. When learning to use this machine, it is a good idea to set this speed at minimum, start the other functions, then slowly increase the speed to observe that your operation and set up are correct.

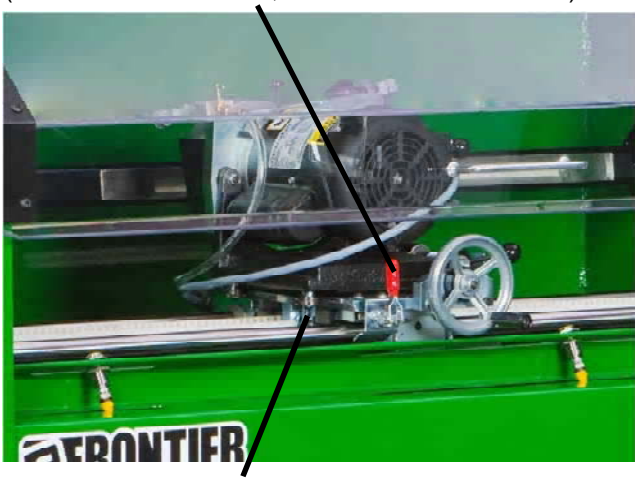
# GETTING TO KNOW YOUR GRINDER (CONTINUED)

### TRAVERSE ENGAGEMENT AND RELEASE

The belt that drives the carriage left and right can be engaged and released by rotating the red clamp handle located on the front, left of the carriage. Moving the lever to the up position will engage the belt and rotating it down will disengage the belt. The clamp tip can be adjusted if necessary to increase or decrease the tension on the belt. See adjustments in the service manual for more details.

**IF NECESSARY, THE BELT CLAMP TIP MUST BE ADJUSTED AS SPECIFIED IN THE SERVICE MANUAL. IF THE CLAMP IS OVERTIGHTENED, THE BELT MAY NOT SLIP WHICH MAY CAUSE DAMAGE TO THE MACHINE OR BEDKIFE.**

TRAVERSE ENGAGEMENT LEVER
(UP TO ENGAGE BELT, DOWN TO DISENGAGE)

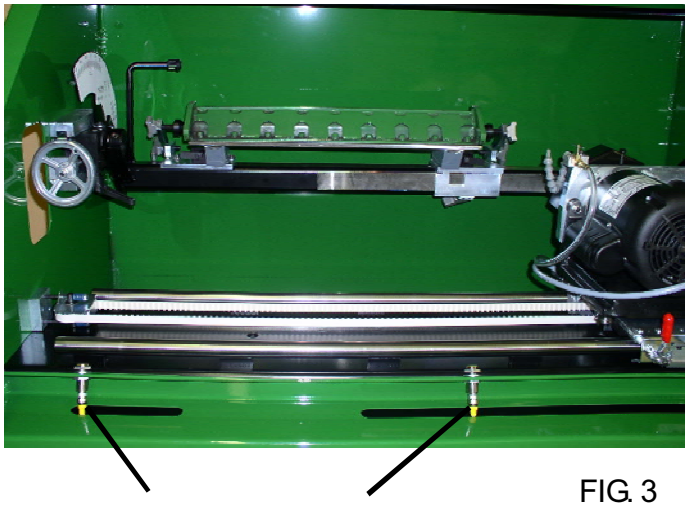


BELT CLAMP TIP

FIG. 2

### TRAVERSE PROXIMITY SWITCHES

Two movable switches determine the left and right limits of carriage traverse. See FIG 3. An LED on the switch lights when the switch actuator bracket on the bottom of the carriage gets close to the head of the switch. Note, there should be a 3/16 gap between the proximity switch head and the traverse actuator bracket.



TRAVERSE PROXIMITY SWITCHES

FIG. 3

### COOLANT SYSTEM

FLEXIBLE TUBE AND NOZZLE

FLOW VALVE

**Coolant Nozzle**

Directs a stream of coolant onto the bedknife and grinding wheel. For precise aiming, the nozzle and connecting tubing are completely flexible.

NOTE: The connecting tube can be shortened by removing segments as desired

**Coolant Flow Valve**

Controls the volume of coolant flowing to the nozzle. Use only enough flow to cool the bedknife. Excess flow will cause excess splashing - and **won't** improve performance.

FIG. 4

# GETTING TO KNOW YOUR GRINDER (CONTINUED)

## GRINDING HEAD

**Vertical Eccentric Adjustment and Lock**
Moves the grinding head up and down.

**Horizontal Handwheel**
Moves the grinding head infeed in and out.

**Horizontal Adjustment Scale**
Calibrated in .002 in [.05mm] increments, so you can accurately move the grinding wheel in for each pass across the face of the bedknife.

**Wheel Guard Lock Screws**
A T-knob holds the guard in position. Loosen it to pivot the guard when the guard interferes with the bedbar.

**Diamond Wheel Dresser**
Allows you to dress the grinding wheel. Cleaning and dressing the grinding wheel improves the quality of the grind.

FIG. 5

**THE DIAMOND DRESSER SHOULD ONLY BE USED WITH A VITRIFIED GRINDING WHEELS. THIS GRINDER IS SHIPPED WITH A BORAZON GRINDING WHEEL AND A CLEANING BRICK. DO NOT USE THE BUILT IN DIAMOND DRESSER ON THE BORAZON WHEEL!**

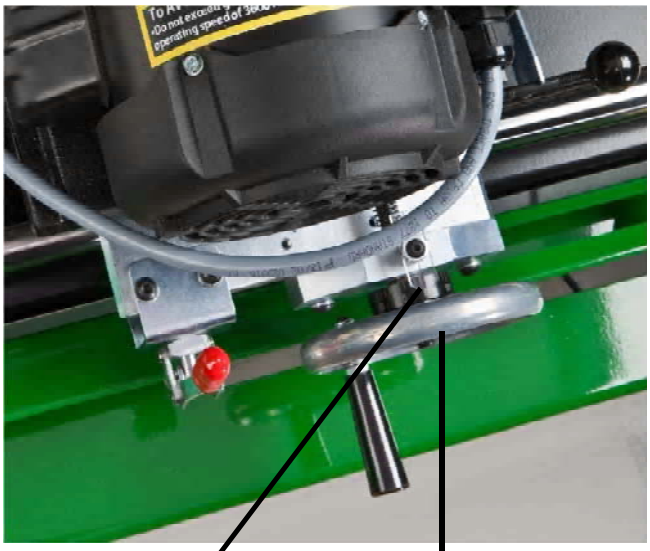



FIG. 6

### FIXED BEDKNIFE SUPPORT (LEFT SIDE)

The bedknife and bedbar is held in position by two magnets and centers. The left side magnet and center position is fixed. See Fig 7.

### ADJUSTABLE BEDKNIFE SUPPORT (RIGHT SIDE)

The right side magnet and center is adjustable to match the width of the bedknife. See Fig 8

### LOCK KNOB (ON BACK OF RIGHT HAD ADJUSTABLE SUPPORT)

Locks the right magnet and center assembly in position on the tooling bar slide. See Fig 8

**! WHEN TIGHTENING THE ADJUSTABLE BEDKNIFE SUPPORT, CHECK TO SEE THAT IT IS TIGHT TO THE MACHINED SURFACES OF THE TOOLING BAR.**

### BEDKNIFE SETUP GAUGE

On the outside of each magnet is a retractable bedknife setup gauge. These gauges are used to help align the bedknife to the grinding wheel carriage travel. Operation of the gauges will be explained in the operations section of this manual. See Fig 7 & 8

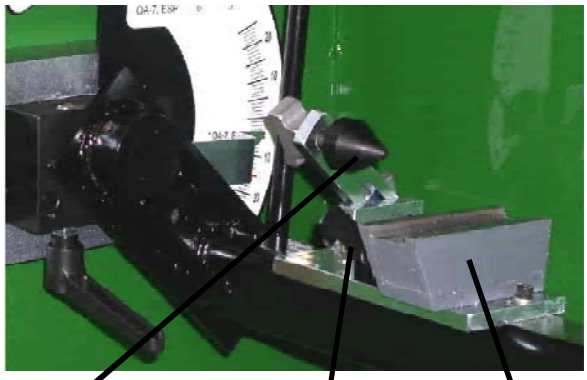



FIG. 7

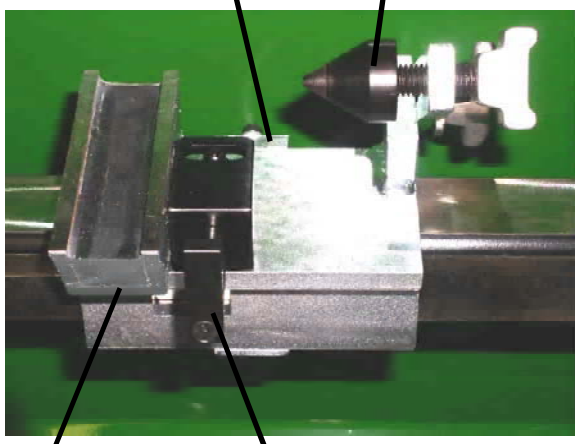



FIG. 8

### TOOLING BAR ADJUSTMENT HANDWHEEL

The tooling bar adjustment handwheel moves the tooling bar horizontally. The handwheel is used to align the the tooling assembly and bedknife to the grinding head. This will ensures maximum life of the bedknife. See Fig 9

### TOOLING ROTATION

To achieve the recommended bedknife angles, the BG1500 bedknife grinder has a rotatable tooling bar with an angle indicator and lock handle. See Fig. 9 To rotate to a new angle or to rotate from the front face to top face, grasp the tooling rotate handle and then loosen the tooling bar rotate lock handle. Manually rotate to the desired angle as indicated on the decal and tighten the lock handle.

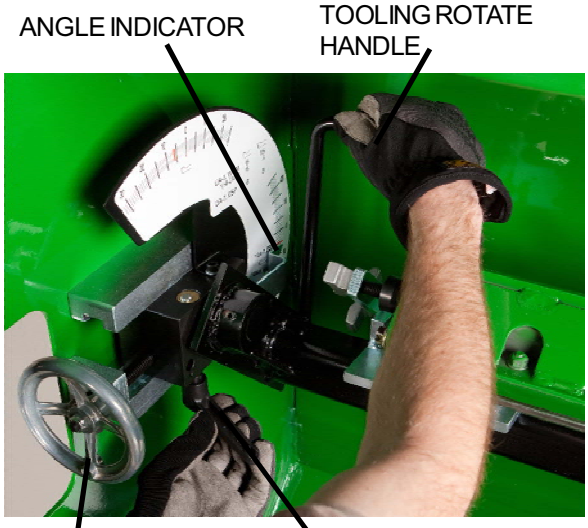



FIG. 9

### WHEN TO SHARPEN THE BEDKNIFE

When the grass is not being cut cleanly, or the cut ends of the grass appear torn or ragged, the edges of the reel blade and bedknife have become rounded and need sharpening. See FIG. 10A. The purpose of sharpening is to restore the sharp edges to the reel and bedknife.

**IMPORTANT:** To fully sharpen a reel mower, you need to grind the reel blades (using a Reel Grinder) **and** reshape the cutting edge of the bedknife.

**NOTE:** New bedknives should be ground before being put into use. New bedknives deform and move to match the shape of the bedbar at the time of installation and therefore **MUST** be ground to a straight surface after installation.

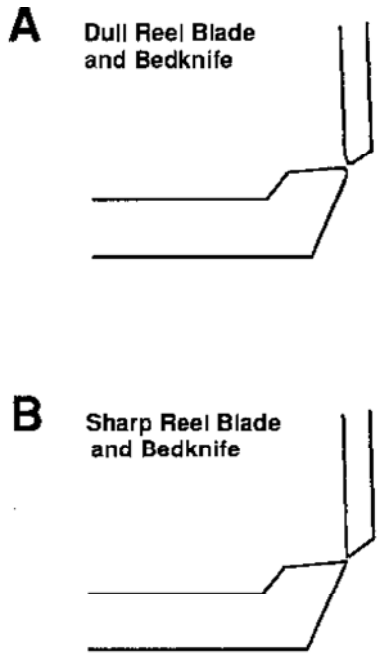



FIG. 10

### BEDKNIFE GRINDING ANGLES

The bedknife has two faces that normally need to be ground, the top face and the front face (on some models, the front face may be curved and may not need grinding).

The proper grinding angles for the two faces will vary depending on the model. **Always follow the manufacturer's recommended specifications for bedknife angles.**

Typical Bedknife angles:

- There will be a +4 to -10 degrees clearance angle ground on the top face. The angle is **usually** measured relative to the bedknife mounting surface. See FIG. 11A.
- There will be a 0-30 degrees clearance angle ground on the front face. The angle is **usually** measured relative to a line **perpendicular** to the bedknife mounting surface. See FIG. 11B.

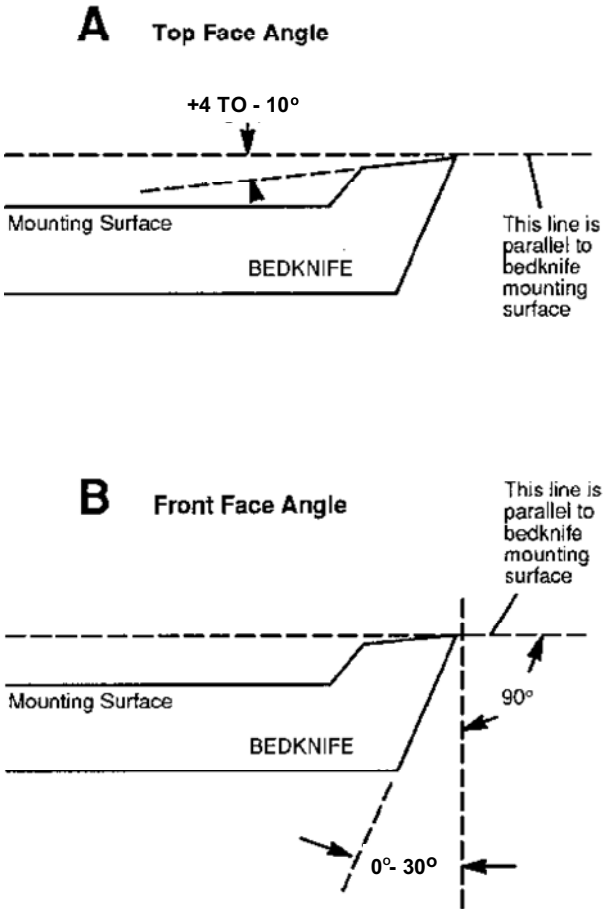



FIG. 11

**TERMS:**
Bedknife - the stationary blade in a reel mower.
Bedknife Support or bedbar - the bedknife is mounted to this frame member with screws or rivets.
Top Face - the horizontal, ground surface of the bedknife.
Front Relief Angle - the angle between vertical and the manufacturer's recommended sharpening angle.
Top Relief Angle - the angle between horizontal and the manufacturer's recommended sharpening angle.

**Recommended Face & Top Angles**
If your model is not listed, consult your John Deere manual for the recommended sharpening angles.

## John Deere Bedknife Grind Angles

| Used on | Description | Part Number | Standard On | Front Face Grind Angle | Top Grind Angle |
|---|---|---|---|---|---|
| 220A/B/C WGM<br>All 22" QA5<br>All 22" Standard/Medium | 22" Standard | ET17533 | 2500B 11-blade; 2500E 11-blade; 220C; 220 E-Cut; 7500 11-blade; 7500 E-Cut 11-blade; 8500 11-blade; 8500 E-Cut 11-blade | 15 | 6 |
| | 22" Tournament | ET17534 | | 15 | 6 |
| | 22" Fairway, Lo-Cut | ET17532 | | 15 | 6 |
| | 22" Fairway, Hi-Cut | ET17767 | 2500B 7-blade; 2500E 7-blade; 7500 7-blade; 7500 E-Cut 7-blade; 8500 7-blade; 8500 E-Cut 7-blade | 5 | 6 |
| | 22" Low Cut | MT7351 | | 15 | 6 |
| | 3.0 mm w/ Hardened Insert | ET11066 | | 15 | 6 |
| 180A/B/C WGM<br>All 18" QA5 | 2.5 mm Tournament | MT4846 | 180C | 15 | 6 |
| | 18" Low Cut | MT7350 | 8000 E-Cut 11-blade | 15 | 6 |
| | 18" Fairway | TCU25299 | 8000 E-Cut 7-blade | 15 | 6 |
| 260B/C WGM | 26" Standard | MT6947 | 260C | 15 | 6 |
| | 26" Fairway | MT6946 | | 15 | 6 |
| All 22" QA7<br>All 22" ESP | 22" Standard | ET17751 | 7700 8-blade; 8700 8-blade | 5 | 6 |
| | 22" Tournament/Low-Cut Fairway | MT1928 | 7700 10-blade; 8700 10-blade | 5 | 6 |
| | 22" Tournament/ Ultra Low-Cut | MT3983 | | 5 | 6 |
| All 26" QA7<br>All 26" ESP | 26" Standard | ET17752 | 2653B; 7200 | 5 | 6 |
| | 26" Tournament | MT6949 | | 5 | 6 |
| All 30" QA7 and ESP | 30" Standard | MT1973 | 2653B; 7200 | 5 | 6 |
| 30" ESP for 365<br>30" ESP for 1905 | 10 mm | ET16755 | | 5 | 6 |
| | 13 mm | ET16756 | | 5 | 6 |
| MKI/MK2<br>BEAVER UNITS | 10 mm | MT1117 | | 5 | 6 |
| | 13 mm | MT1118 | | 5 | 6 |

# OPERATING INSTRUCTIONS (CONTINUED)

## MOUNTING A GRINDING WHEEL

To replace the grinding wheel: See FIG. 12.

1. First, turn the power off by pushing in the Emergency Stop button.

2. Use the grinding wheel wrench supplied with the grinder to unscrew the mounting flange that holds the grinding wheel,.

**THE LOCK FLANGE HAS A LEFT HANDED THREAD, HOLD THE WHEEL AND TURN THE WRENCH CLOCKWISE WHILE LOOKING AT THE LOCK FLANGE TO LOOSEN.**

3. Remove the old wheel and install the new one.

4. Screw on the flange finger tight, then tighten approximately 1/8 turn further with the wrench. The flange will self-tighten when motor is turned on.

FIG. 12

**(VITRIFIED GRINDING WHEELS)**
**IF THE WHEEL FLANGE IS OVERTIGHTENED, THE GRINDING WHEEL MAY CRACK AND FLY APART.**

5. (VITRIFIED GRINDING WHEELS)
After you install a new or different wheel, it is recommended that you dress it before grinding. Dressing trues the grinding surface of the wheel and removes the hard glaze sometime remaining from the manufacturing process. Dressing the wheel properly prepares the wheel for grinding.

**GRINDING WHEELS AVAILABLE FOR BG1500 BEDKNIFE GRINDER**

| WHEEL PART NO. | COLOR/DESCRIPTION/SIZE | GRIT | |
|---|---|---|---|
| 5NT3700060 | White/red (ruby) flare-cup wheel 6/3-1/4 x 2 0.627 inch bore, vitrified ruby | 60 | |
| 5NT3700062 | White flare-cup wheel, 6/ 3-1/4 x 2 0.627 inch bore, vitrified | 46 | |
| 5NT3700268 | White/red (ruby) straight-cup wheel, 6 x 2 x 0.627 inch bore, vitrified ruby | 60 | |
| 5NT3700411 | White straight-cup wheel, 6 x 2 x 1.25 inch bore, vitrified | 46 | |
| 5NT3700670 | Borazon straight - cup wheel, 6 x 1-1/2 x 0.625 inch bore | 60 | |
| 5NT3700696 | Borazon straight-cup wheel, 6 x 1-1/2 x 0.625 inch bore | 120 | Standard Grinding Wheel |

# OPERATING INSTRUCTIONS (CONTINUED)

## DRESSING/CLEANING THE GRINDING WHEEL

Clean or dress the grinding wheel whenever there is any glazing. Glazing is the buildup of stone dust, grinding grit, and coolant on the face of the wheel. For best results with a vitrified wheel, also dress the wheel before making the final grind.

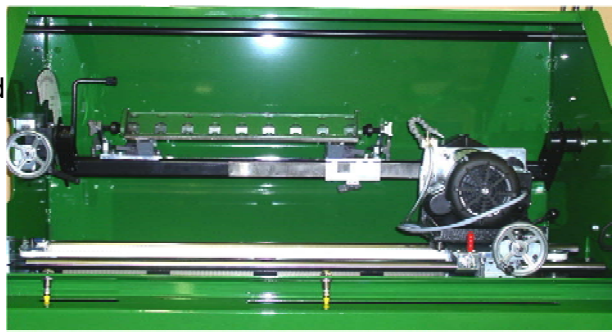


FIG. 13

**REFER ALSO TO THE "SAFETY RULES WHEN GRINDING" ON PAGE 3.**

For cleaning or dressing, always move the grinding head to the right hand side of the machine (FIG. 13) so you are clear of the bedknife.

## CLEANING A BORAZON GRINDING WHEEL

Do not use the built in diamond dresser on the Borazon grinding wheel. If the Borazon wheel is not grinding effectively use the cleaning stick to recondition the wheel. To use the cleaning stick, thoroughly soak the stick in water. Turn on the grinding motor if not already on. Once the motor is at full speed, turn off the motor. As soon as the power is turned off, press the cleaning stick STRAIGHT into the grinding surface of the wheel until the wheel skids to a stop. Repeat this procedure if necessary until the wheel is grinding effectively.

**DO NOT MOVE THE CLEANING STICK SIDEWAYS. MOVING THE CLENAING STICK SIDEWAYS WILL ERRODE THE BONDING MATERIAL ON THE SIDES OF THE GRINDING PARTICALS. THIS WILL GREATLY DRECREASE THE LIFE OF THE WHEEL.**

## DRESSING A VITRIFIED GRINDING WHEEL

With the wheel turning, lift the dresser movement arm off its holder and push it forward. Swing the dresser around to the grinding face of the wheel and turn the adjuster ring until the diamond point **JUST** touches the wheel. See FIG. 16. If the dresser is adjusted too far into the wheel, the area supporting the diamond will be ground and the diamond may come loose. Rotate the diamond tip dresser across the full width of the wheel two times. When done, rotate the handle clockwise against the lock bracket before pulling back and replace the dresser movement arm in the holder. See FIG. 15.

**NOTE:** Excessive dressing will shorten the life of the wheel. Too little dressing will inhibit proper grinding.

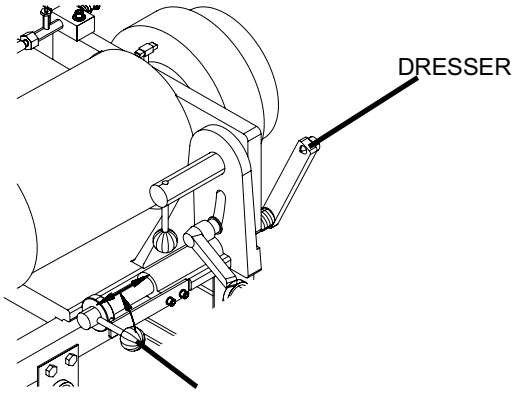



FIG. 15 Dresser locked

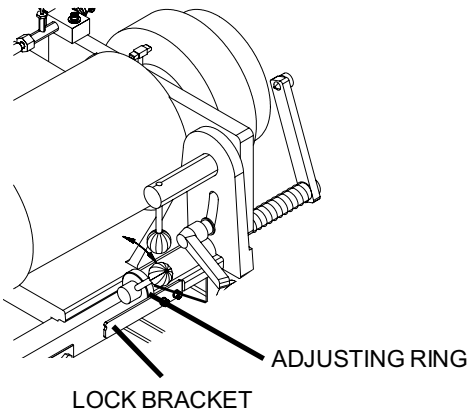



FIG. 16 Dresser unlocked

**Replacing the Wheel**

BORAZON WHEEL - There is approximately 1/8 " [3.2 mm] of grinding material on the end of the wheel. When there is minimal grinding material remaining the wheel should be replaced.

VITRIFIED WHEEL - A new vitrified grinding wheel is 2" [51 mm] deep. When it wears down to a depth of 0.75" [19 mm], it should be replaced. See FIG. 17.

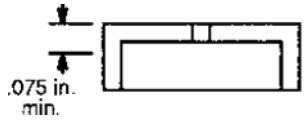



FIG. 17

## USING FLOOD COOLANT

For quality grinding, we highly recommend using flood coolant to prevent heat buildup on the knife edge.

**IF YOU DRY-GRIND, NEVER ALLOW THE BEDKNIFE EDGE TO CHANGE COLOR OR YOU MAY LOSE THE TEMPER IN THE KNIFE EDGE.**

**ALWAYS READ THE MATERIAL SAFETY DATA SHEET (MSDS) FOR THE COOLANT YOU ARE USING. BELOW ARE WARNINGS THAT APPLY TO MOST COOLANTS.**

**AVOID CONTACT OF COOLANT WITH EYES: IT WILL CAUSE EYE IRRITATION. WEAR FACE SHIELD OR GOGGLES WHEN HANDLING CONCENTRATE. IN CASE OF CONTACT, FLUSH EYES WITH WATER FOR 15 MINUTES AND CONTACT A PHYSICIAN.**

**AVOID BREATHING MIST. PROVIDE LOCAL VENTILATION. KEEP CONCENTRATED BOTTLE CLOSED WHEN NOT IN USE.**

**CONTINUED CONTACT OF CONCENTRATE ON SKIN MAY CAUSE IRRITATION. WASH WITH SOAP AND WATER AFTER CONTACT.**

**DO NOT TAKE INTERNALLY. IF INGESTED, CONSULT PHYSICIAN AND DO NOT INDUCE VOMITING.**

**(HAZARD POTENTIAL APPLIES TO CONCENTRATE, AND IS LESS AT NORMAL USE DILUTION.)**

### Mixing the Coolant

Mix Part No. 5NTBG1509002 coolant at a ratio of 50 parts water to 1 part concentrate. Refer also to the label on the coolant container. If the coolant tray is empty, this will take about 6.5 gallons of water and one pint of concentrate [24.6 liters of water, and 0.5 liter of concentrate].

**THE COOLANT RATIO AS SPECIFIED MUST BE USED. TOO HIGH A CONCENTRATION OR LOW A CONCENTRATION WILL CAUSE CORROSION AND PERFORMANCE PROBLEMS.**

**USE OF COOLANT OTHER THAN FACTORY SUPPLIED COOLANT CONCENTRATE IS NOT RECOMMENDED. ALTERNATIVE COOLANT CONCENTRATES MAY CAUSE CORROSION, GUMMING, OR GRINDING PROBLEMS.**

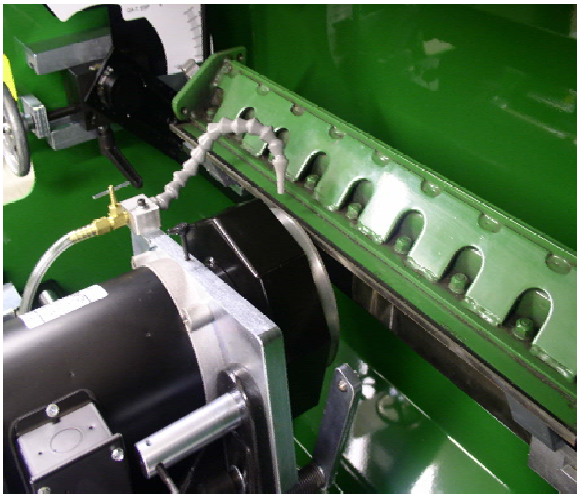


FIG. 18

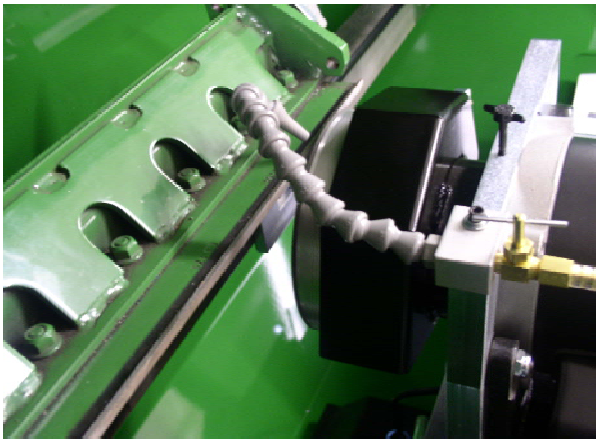


FIG. 19

### Using the Coolant

Direct the nozzle so the coolant sprays onto the bedknife face being ground. FIG. 18 or 19. Some coolant will then also be deflected onto the grinding wheel. Adjust the flow valve so there is a steady stream of coolant. Avoid a stronger flow than needed, excessive coolant doesn't cool more, and increases splattering.

### Fluid Level in Coolant Tank

Check the fluid level in the Coolant tray daily to avoid running out while grinding. Keep the coolant level between .25 - .50 inches [6-12 mm] above the top of the coolant sump. The pump inlet must **always** be completely submerged in water. Never add plain water to the coolant when the level is low. Always add water and concentrate in the correct proportions. It is recommended to pre-mix coolant and water in a separate container for this purpose.

# OPERATING INSTRUCTIONS (CONTINUED)

## MOUNTING A BEDKNIFE FOR GRINDING

**Inspect and Clean the Bedknife**
Inspect the bedknife for damage (cracks, warping, bushing wear, excessive bedknife wear). Replace or repair if necessary, see the mowing unit manufacturer's manual. Thoroughly clean the bedknife, especially on the bottom where the magnets will attach.

**It is recommended that you thoroughly wire brush the bottom of the bedknife before mounting.**

**Prepare the Machine for Mounting the Bedknife**
Position the grinding head all the way to the right, then move the grinding wheel back (away from the magnets) to gain clearance for the bedknife. Pivot the tooling assembly to the horizontal position (Front face grinding position) and set the bedknife angle to 0 front face angle. Always wipe any grindings, dirt, etc. from the magnets and the tooling bar right side slide area before mounting the bedknife.

## USING A FLARE CUP WHEEL FOR ADDED CLEARANCE

The shape of some bed bars requires using an **optional** flare-cup grinding wheel to clear the end supports. See FIG. 20.

Flare-cup wheels can be ordered in several 6" [150 mm] diameter versions. For most applications, the 6" borazon straight cupped wheel is used. However, if the end mounting flanges of the bedknife are more than 2" [50 mm] high or near the front face of the knife, you may need the optional 6" flared cup wheel.

For Part Numbers and descriptions of available grinding wheels, refer to the Grinding Wheels list on Page 15.

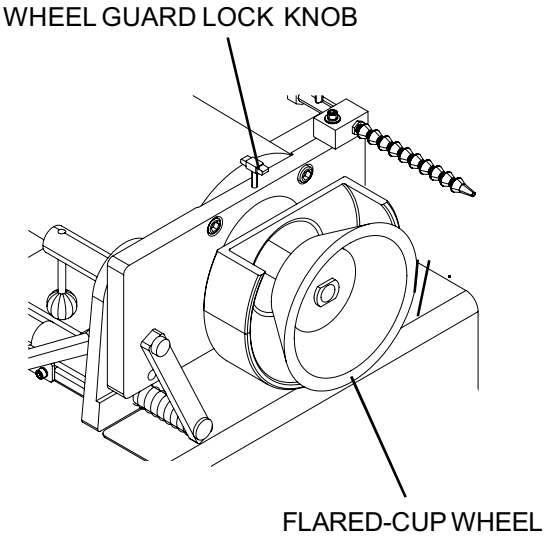



FIG. 20

## ROTATING THE WHEEL GUARD

Some bedknives and bedbars have mounting ears so close to the bedknife top face that there is no clearance for the wheel guard. For these applications, generally a flared cup grinding wheel should be used and the grinding wheel guard can be loosened and rotated so the clearance area of the guard allows the bedknife to be ground without interference. When completed, **ALWAYS** reposition the guard to its normal position with the clearance notch down. See FIG. 20

**FOR OPERATOR SAFETY, THE GRINDING WHEEL GUARD MUST BE USED WITH THE CLEARANCE AREA UP ONLY WHEN REQUIRED FOR BEDBAR CLEARANCE.**

## MOUNTING A BEDKNIFE FOR GRINDING (Continued)

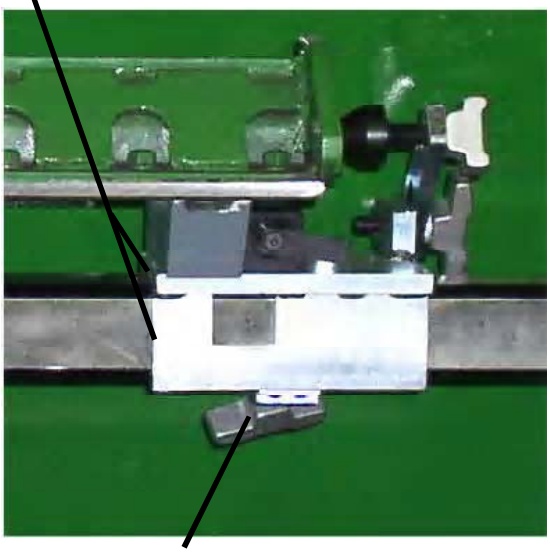
**Mount the Bedknife**

1. Pull both gauge tips forward and rotate the gauge into position, straight up. Loosen the lock knob and on the right side magnet and center assembly. See FIG. 21. Set the bedknife / bedbar assembly to be ground on the magnets. Move the right side magnet assembly until the bedknife setup gauge tips are at both ends of the bedknife, then tighten the right side adjustable support lock knob enough to secure the magnet. When tightening, make certain the mount is tight to the tooling bar machined surfaces.

2. Position the bedknife so the unworn tips on a used bedknives or the ends of a new bedknife are on the gauge tips. See FIG. 22 Pull the bedknife forward firmly against the gauge tips. Install the centers by loosening the arms lock handles only enough to slide the arms and loosening the center lock knobs. Position the center into a bedknife hole and tighten the center lock knob and the arm lock handle on both sides. See FIG. 21 and 22. Rotate the bedknife setup gauge until the gauge retracts to the stored position.

**! THE CENTER SHOULD NOT LOAD THE BEDBAR IN ANY DIRECTION AND SHOULD BE TIGHTENED INTO THE BEDBAR ONLY ENOUGH TO HOLD THE BEDBAR RIGID.**

VERIFY TOOLING IS TIGHT TO BOTH MACHINED SURFACES OF THE TOOLING BAR

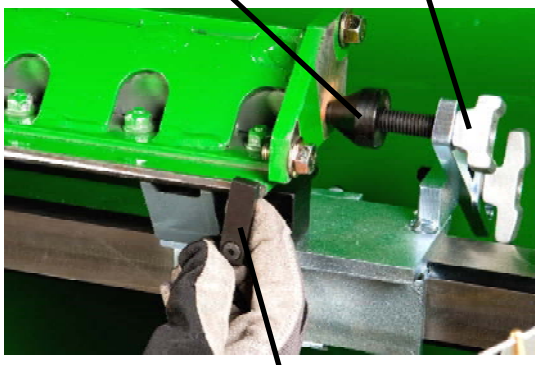


RIGHT SIDE ADJUSTABLE SUPPORT LOCK KNOB

FIG. 21

CENTER

CENTER LOCK KNOB



BEDKNIFE SETUP GAGE

FIG. 22

## BEDKNIVES WITH DUAL CUTTING EDGES

Some mowing unit manufacturers and some after market bedknife manufacturers make a bedknife with Dual Cutting Edges as shown in FIG. 24.

Because of the two rounded surfaces that these bedknives present to the magnets there is minimal holding force.

Therefore, to achieve a solid hold with the magnets, you must file the bottom side of the bedknife with a flat bastard file as shown in Fig 23.

You must file with a uniform stroke across both radiuses. File until you have developed flats on the radius that are a minimum of 3/32 (.09) [2.3mm] wide and uniform in width for the length of the magnet on each end of the bedknife.

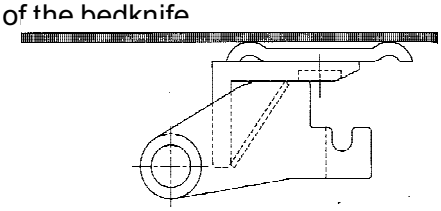


FIG. 23

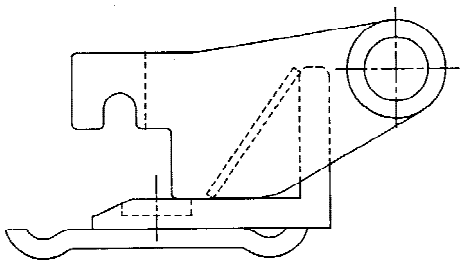


FIG. 24.

## GRINDING THE FRONT FACE

**NOTE:** The following instructions presume that you have already studied all previous sections of this manual.
**NOTE:** On some mower bedknives, the front face is curved and therefore may not have to be sharpened.

**Position the Bedknife for Front-Face Grinding (See FIG. 25)**
Loosen the left side tooling rotate lock handle. Rotate the tooling assembly to the front face position (down) and set the front face angle to the mower factory specification. Tighten the tooling rotate lock handle.

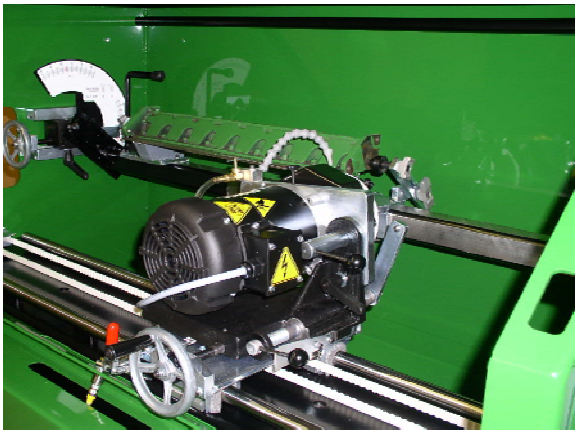


FIG. 25

**Check Clearances and Set Traverse Limits**
Position the grinding head so that the grinding wheel just touches the front face of the bedknife. With the vertical cam and lock lever (see Fig 26), adjust the grinding head so the grinding wheel rim extends 1/2" [12mm] or as much as possible above the front face to be ground.

**IF THE GRINDING WHEEL RIM DOES NOT EXTEND OVER THE BEDKNIFE FACE, IT WILL GRIND UNEVENLY AND CAUSE GROOVES ACROSS THE SURFACE OF THE BEDKNIFE.**

**Check for interference:**
1. Back out the grinding head so the wheel no longer touches the front face of the bedknife.
2. Slide the left and right proximity switches to the far ends of the rail.
3. Set the TRAVERSE speed potentiometer to slow. Set the CARRIAGE TRAVERSE switch to ON. Traverse the carriage to the left until the contact area of the grinding wheel is about 1" beyond the area to be ground on the bedknife, then turn the traverse potentiometer to zero. Be prepared to STOP the traverse earlier if there is any interference between the grinding wheel and the bedbar.

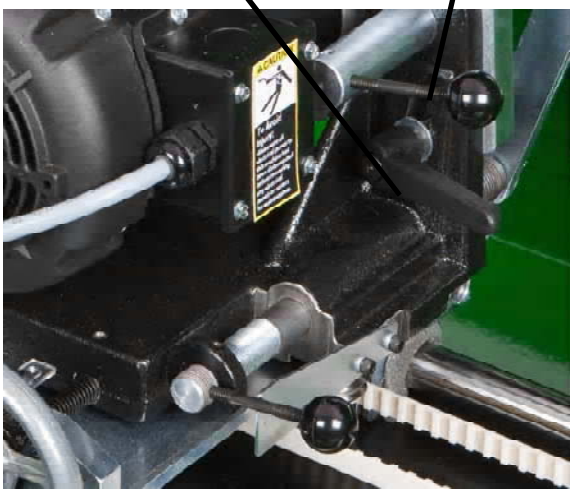



FIG. 26

With the carriage still in the position determined in Step 3 above, slide the left proximity switch in until its LED lights.

Traverse back to the right until the grinding wheel reaches the point where it covers the entire area to be ground and goes past that point by 1" [25 mm] or more if possible. Then set the right proximity switch in the same manner.

**NOTE:** The area of the grinding wheel which contacts the bedknife is on the left side of the wheel. When grinding the left end of the bedknife, the area of the wheel which does not contact the bedknife will still be over the bedknife. See FIG. 27. When you go to the right end of the grinder, the wheel traverses completely off the bedknife.

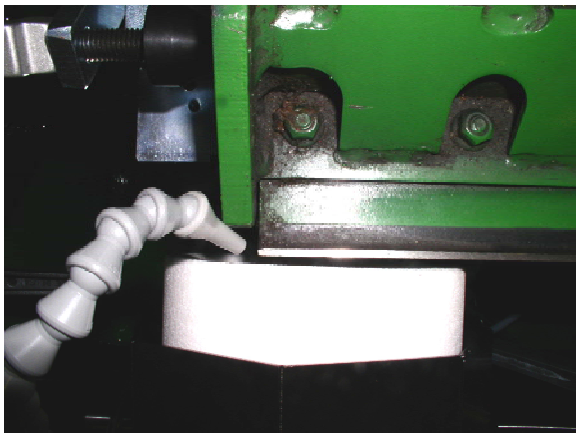


FIG. 27

Follow the alignment procedure on the next page before grinding the bedknife.

## BEDKNIFE ALIGNMENT

After securing the bedknife on the tooling support assembly, the bedknife face must be aligned to the grinding head. Use the left side tooling adjuster handwheel to align the bedknife to the grinding head.

**Alignment is accomplished by touching the grinding wheel to the bedknife.**

With the bedknife set to the correct angle, move the grinding head to the right end fo the bedknife. Now, rotate the infeed handwheel until the wheel *just* touches the bedknife at the end nib of the knife face on a used bedknife, or the full knife face on a new bedknife. On used bedknive if you wish to grind to match the worn bedknife, then touch the grinding wheel inside the end nib. See FIG. 28.

**GRINDING WHEEL AT RIGHT END OF BEDKNIFE**

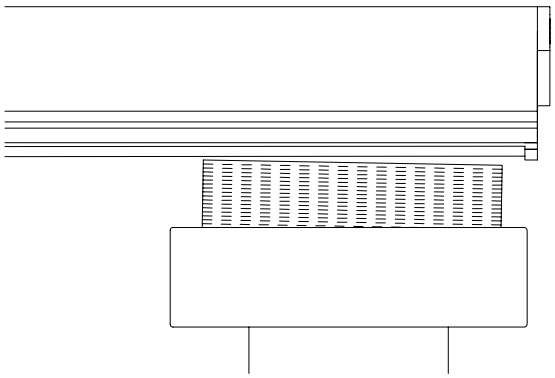


FIG. 28

Next, move the grinding head to the left end of the bedknife. Now without moving the grinding head infeed, adjust the tooling bar left side adjuster until the grinding wheel *just* touches the bedknife end nib or the knife face on a used bedknife, or the full knife face on a new bedknife. Again, on a used bedknife if you wish to grind to match the worn bedknife, touch the grinding wheel inside the end nib. See FIG.29. Because when you adjust the left side, the right side also moves a small amount, you should go to the right and left sides several times to verify that you *just* contact the knife at both ends. This can be done while grinding the knife.

**GRINDING WHEEL AT LEFT END OF BEDKNIFE**

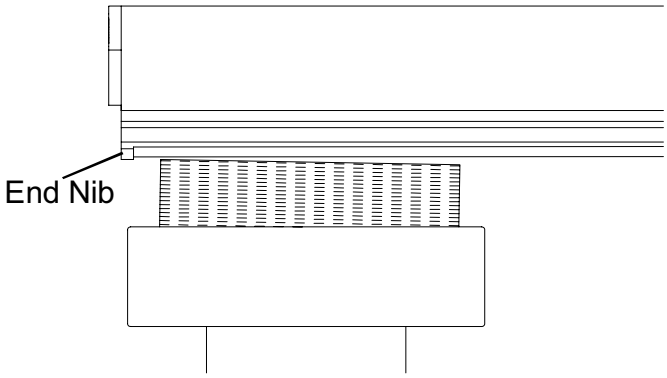



FIG. 29

NOTE: These adjustments are done at the left side handwheel, NOT at the infeed handwheel on the grinding head.

NOTE: The recommended method is to use the end nib. Using the end nibs will help keep the bedknife true to the mounting holes in the bedbar.

## GRINDING THE FRONT FACE (Continued)

**Grind the Bedknife**
When you are satisfied with the grinder head alignment, begin grinding:

**REFER TO THE "SAFETY RULES WHEN GRINDING" ON PAGE 3.**

1. Set the **GRINDING WHEEL** switch to ON.

2. Set the **COOLANT PUMP** switch to ON. Check the nozzle is directing coolant onto the bedknife. FIG. 19.

3. Set the **TRAVERSE** speed Potentiometer at about 15 to 20.

4. With the grinding wheel is over the bedknife, rotate the horizontal infeed handwheel (clockwise) until the wheel is lightly removing metal from the bedknife. It is recommended to take off about .002 to .003" [.05 to .075 mm] per pass.

   **NOTE:** The horizontal adjustment dial is calibrated in .002" [.05 mm] increments.

   **NOTE:** During the grinding process, watch the spark pattern for the full length of grind, the sparks should look equal for the full length of grind.

   **NOTE:** If an excessive amount of metal stock will have to be removed on one end of the bedknife, recheck your setup first and then the straightness of the bedknife. If it is bowed or twisted, replace it.

5. Continue grinding the bedknife in this manner until you are satisfied with the front face grind. Dress the wheel when necessary. (see "Cleaning/Dressing the Grinding Wheel" )

6. If you are using a vitrified grinding wheel, dress the wheel before the final **spark out** grind. For spark out procedure, see the top of page 25.

By partially grinding both surfaces, the top face and the front face, as shown in FIG. 30, you will resharpen a used bedknife with the least metal removal. FIG. 30 also shows how much stock would be removed if you ground the top face surface until sharp. Partially grinding both surfaces is the preferred method for life utilization of the bedknife.

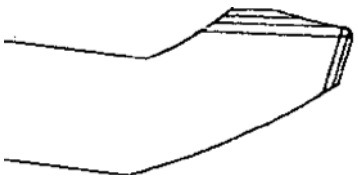


FIG. 30

**SHUT OFF THE COOLANT PUMP SWITCH BEFORE YOU SHUT OFF THE GRINDING WHEEL, TO ALLOW THE WHEEL TO SPIN DRY. IF THE WHEEL RETAINS TOO MUCH COOLANT, IT WILL BE UNBALANCED WHEN YOU AGAIN TURN ON THE GRINDING MOTOR.**

**GRINDING THE TOP FACE**
**NOTE:** The following instructions presume that you have already studied all previous sections of this manual.

**Position the Bedknife for Top-Face Grinding (See FIG. 31 )**
When rotating from front face grinding to top face grinding, the grinding head must be backed out three full turns. Rotate the tooling assembly to the top face position (up) and set the top face angle to the mower factory specifications.

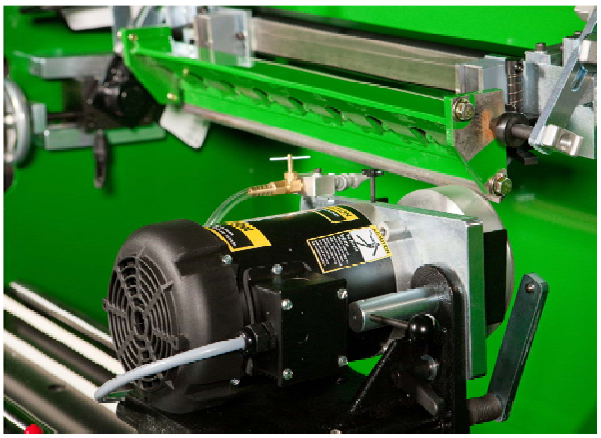


FIG. 31

**Check Clearances and Set Traverse Limits**
Position the grinding head so that the grinding wheel *just* touches the top face of the bedknife. Check to see if the rim of the grinding wheel is extended 1/2" [50mm] above the top face of the bedknife. If you have previously ground the front face it most often will be correct. If not, with the vertical cam and lock lever, adjust the grinding head. See FIG. 32. If the shape of the bedbar interferes with the wheel guard or grinding wheel you will need to make adjustments. See page 18.

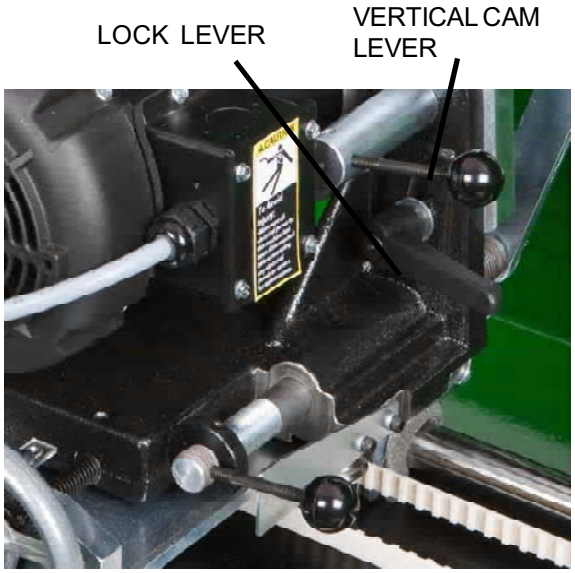



FIG. 32

**! IF THE GRINDING WHEEL RIM DOES NOT EXTEND OVER THE BEDKNIFE FACE, IT WILL GRIND UNEVENLY AND CAUSE GROOVES ACROSS THE SURFACE OF THE BEDKNIFE.**

Check for interference:

1. Back out the grinding head so the wheel no longer touches the top face of the bedknife.

2. If you have just ground the front face the travel limit should still be correct, but you should still verify no interferences as described below. If you did not grind the front face, follow the full procedure listed below. Slide the left and right proximity switches to the far ends of the rail.

3. Set the TRAVERSE speed potentiometer at 10. Set the CARRIAGE TRAVERSE switch ON. Traverse the carriage to the left until the contact area of the grinding wheel is about 1" beyond the area to be ground on the bedknife. Turn the traverse potentiometer to zero. Be prepared to STOP the traverse earlier if there is any interference between the grinding wheel and the bedbar.

With the carriage still in the position determined in Step 3 above, slide the left proximity switch in until the LED lights.

# OPERATING INSTRUCTIONS (Continued)

**GRINDING THE TOP FACE (Continued)**
Traverse back to the right until the grinding wheel reaches the point where it covers the entire area to be ground and goes past that point by 1" [25 mm] or more if possible. Then set the right proximity switch in the same manner.

**NOTE:** The area of the grinding wheel which contacts the bedknife is on the left side of the wheel. When grinding the left end of the bedknife, the area of the wheel which doesn't contact the bedknife will still be over the bedknife. See FIG. 33. When you go to the right end of the Grinder, the wheel traverses completely off the bedknife.

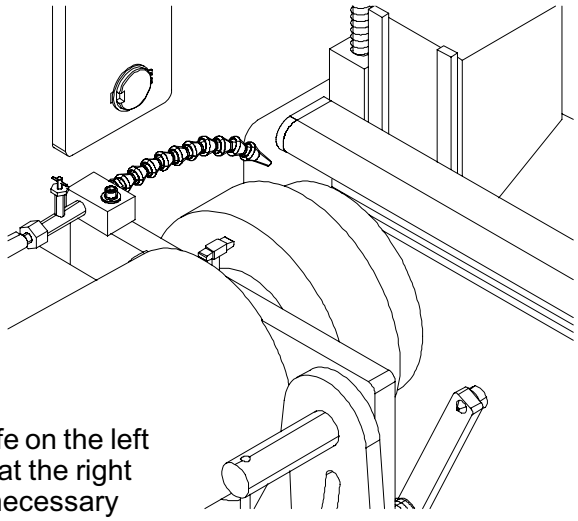


FIG. 33

Infeed the grinding wheel until it very lightly touches the bedknife on the left side. Now traverse to the right end of the bedknife to assure that the right side is not closer to the grinding wheel. Back the wheel out if necessary until you can traverse full length with a very light touch at the closest point.

**Grind the Bedknife**
Align the bedknife per the procedure labeled BEDKNIFE ALIGNMENT.

**NOTE: Top face alignment is fully independent of the front face alignment and MUST be done.**

When you are satisfied with the grinding head travel and alignment begin grinding:

**REFER ALSO TO THE "SAFETY RULES WHEN GRINDING" ON PAGE 3.**

**NOTE**: At this point you won't know the condition of the grinding wheel after the previous job. Always clean or dress the wheel before grinding. See section on Cleaning/Dressing grinding wheel.

1. Set the GRINDING WHEEL switch to ON.

2. Set the COOLANT PUMP switch to ON, and check that the nozzle is directing coolant onto the bedknife. See FIG. 33.

3. Set the TRAVERSE speed potentiometer at about 15 to 20.

   **NOTE:** If an excessive amount of metal stock will have to be removed on one end, recheck your setup first and then check the straightness of the bedknife. If it is bowed or twisted, replace it.

4. With the grinding wheel is over the bedknife, rotate the horizontal infeed handwheel (clockwise) until the wheel is lightly removing metal from the bedknife. It is recommended to infeed about .002 to .003" [.05 to .075 mm] per pass.

   **NOTE:** The horizontal adjustment dial is calibrated in .002" [.05 mm] increments.

   **NOTE:** During the grinding process, watch the spark pattern for the full length of grind, the sparks should look equal for the full length of grind.

   **NOTE:** If an excessive amount of metal stock will have to be removed on one end of the bedknife, recheck your setup first and then the straightness of the bedknife. If it is bowed or twisted, replace it.

5. Continue grinding the bedknife in this manner until you are satisfied with the top face grind. Dress the wheel when necessary. (see "Cleaning/Dressing the Grinding Wheel" )

6. If you are using a vitrified grinding wheel, dress the wheel before the final **spark out** grind.

**GRINDING THE TOP FACE (Continued)**

On the spark out passes, infeed the grinding wheel only about .001" [.025 mm] and then let the grinding wheel spark out. For sparking out, always traverse the grinding head 10 to 20 passes without infeeding the grinding head. To get the finest top-face grind, set the TRAVERSE knob at slow speed for this final grinding sparkout. This process improves the surface finish of the grind and improves the grind quality.

**NOTE:** What you are looking for is a "near sparkout" - about a 99% reduction in grinding spark from a normal grind. Don't continue sparking out until you have **no sparks**, because this could be an extremely long time.

**SHUT OFF THE COOLANT PUMP SWITCH BEFORE YOU SHUT OFF THE GRINDING WHEEL. THIS WILL ALLOW THE WHEEL TO SPIN DRY. IF THE WHEEL RETAINS TOO MUCH COOLANT, IT WILL BE UNBALANCED WHEN YOU TURN ON THE GRINDING MOTOR AGAIN.**

**REMOVING THE BEDKNIFE**

To remove the bedknife, rotate the tooling assembly to the front face grinding position (down). Remove the right hand center from the bedbar by backing the center back as far as necessary. DO NOT loosen the arm lock; grasp the bedknife and pull it off the magnets. If the next bedknife to be ground is the same type and size as the previous, simply mount it and proceed with verifying mounting and proceed with new alignment. If the next bedknife to be ground is a different type or size, follow the full installation procedure.

FRONTIER EQUIPMENT™

# ASSEMBLY AND SERVICE MANUAL

# Bed Knife Grinder

## BG1500

FRONTIER EQUIPMENT™

(REV. 6/14/2011)

## DEALER PREPARATION/INSTALLATION CHECK LIST IS LOCATED IN THE OPERATOR'S MANUAL

SEE OPERATOR'S MANUAL FOR INSTALLTION CHECKLIST

It is the responsibility of the dealer to complete the procedures listed in the Operators Manual then review this checklist with the customer upon the delivery or the sale of this equipment.The installation training goes over the basic operational functions of the equipment. To ensure adequate training, we require that the following items are reviewed by your John Deere Dealer. Please check off to ensure that you understand the following items before the installation training is complete:

## Safety

IMPORTANT SAFETY MESSAGE FOR OWNERS/OPERATORS OF BEDKNIFE GRINDERS

Safety is a primary concern in the design, manufacture, sale, and use of bedknife grinders. As a manufacturer of bedknife grinders, we want to confirm to you, our customers, our concern for safety. We also want to remind you about the simple, basic, and common sense rules of safety when using a bedknife grinder. Failure to follow these rules can result in severe injury or death to operators or bystanders.

It is essential that everyone involved in the assembly, operation, transport, maintenance, and storage of this equipment be aware, concerned, prudent, and properly trained in safety. Always use proper shielding as specified by the manufacturer.

Our current production machines include, as standard equipment, guards or shields for the grinding wheel, safety signs and an operator's manual. Never bypass or operate the machine with any of the guards or the safety devices removed.

**Read and fully understand all the safety practices discussed on pages 4 and 5 of this and the operator's manual. All safety rules must be understood and followed by anyone who works with this bedknife grinders.**

Before operating a bedknife grinder, an operator must read and understand all of the information in the operator's manual and in the safety signs attached to the product. A person who has not read or understood the operator's manual and safety signs is not qualified to operate the unit. Accidents occur often on machines that are used by someone who has not read the operator's manual and is not familiar with the equipment. If you do not have an operator's manual or the current production safety signs, contact your dealer immediately.

Bedknife grinders are designed for one-man operation. Never operate the grinder with anyone near, or in contact with, any part of the grinder. Be sure no one else, including bystanders, are near you when you operate this product.

Following these simple, basic safety rules, as well as others identified in the owner's manual and in the product safety signs, will help minimize the possibility of accidents and increase your productivity in using this product. Be careful and make sure that everyone who operates the grinder knows and understands that this is a very powerful piece of machinery, and if used improperly, serious injury or death may result. The final responsibility for safety rests with the operator of this machine.

**TO THE DEALER:**

Assembly and proper installation of this product is the responsibility of the John Deere dealer. Read the manual instructions and safety rules. Make sure all items on the Preparation Check List in the Operator's Manual are completed before releasing equipment to the owner.

**TO THE OWNER**

Read the Operator's Manual before operating your Frontier equipment. Keep all manuals handy for ready reference. Require all operators to read the Operator's Manual carefully and become acquainted with all adjustments and operating procedures before attempting to operate the equipment. Replacement manuals can be obtained from you selling dealer.

The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Please observe all safety information in the Operator's Manual and safety decals on the equipment.

For service, your authorized John Deere dealer has trained mechanics, genuine Frontier service parts, and the necessary tools and equipment to handle all of your service needs.

Use only genuine Frontier service parts.

# SAFETY INSTRUCTIONS

***Safety Awareness Symbols*** are inserted into this manual to alert you to possible ***Safety Hazards***. Whenever you see these symbols, follow their instructions.

The ***Warning Symbol*** identifies special instructions or procedures which, if not correctly followed, could result in personal injury.

The ***Caution Symbol*** identifies special instructions or procedures which, if not strictly observed, could result in damage to or destruction of equipment.

1. **KEEP GUARDS IN PLACE** and in working order.
2. **REMOVE WRENCHES AND OTHER TOOLS.**
3. **KEEP WORK AREA CLEAN.**
4. **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use Grinder in damp or wet locations. Machine is for indoor use only. Keep work area well lit.
5. **KEEP ALL VISITORS AWAY.** All visitors should be kept a safe distance from work area.
6. **MAKE WORK AREA CHILD-PROOF** with padlocks or master switches.
7. **DON'T FORCE THE GRINDER.** It will do the job better and safer if used as specified in this manual.
8. **USE THE RIGHT TOOL.** Don't force the Grinder or an attachment to do a job for which it was not designed.
9. **WEAR PROPER APPAREL.** Wear no loose clothing, gloves, neckties, or jewelry which may get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
10. **ALWAYS USE SAFETY GLASSES.**
11. **SECURE YOUR WORK.** Make certain that the bedknife is securely fastened with the mounts provided before operating.
12. **DON'T OVERREACH.** Keep proper footing and balance at all times.
13. **MAINTAIN GRINDER WITH CARE.** Follow instructions in service section of the Manual for lubrication and preventive maintenance.
14. **DISCONNECT POWER BEFORE SERVICING,** or when changing the grinding wheel.
15. **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure all switches are OFF before plugging in the Grinder.
16. **USE RECOMMENDED ACCESSORIES.** Consult the manual for recommended accessories. Using improper accessories may cause risk of personal injury.
17. **CHECK DAMAGED PARTS.** A guard or other part that is damaged or will not perform its intended function should be properly repaired or replaced.
18. **NEVER LEAVE GRINDER RUNNING UNATTENDED. TURN POWER OFF.** Do not leave grinder until it comes to a complete stop.
19. **KNOW YOUR EQUIPMENT.** Read this manual carefully. Learn its application and limitations as well as specific potential hazards.
20. **KEEP ALL SAFETY DECALS CLEAN AND LEGIBLE.** If safety decals become damaged or illegible for any reason, replace immediately. Refer to replacement parts illustrations in this Manual for the proper location and part numbers of safety decals.
21. **DO NOT OPERATE THE GRINDER WHEN UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR MEDICATION.**

# SAFETY INSTRUCTIONS

**IMPROPER USE OF GRINDING WHEEL MAY CAUSE BREAKAGE AND SERIOUS INJURY.**

**Grinding is a safe operation if the few basic rules listed below are followed. These rules are based on material contained in the ANSI B7.1 Safety Code for "Use, Care and Protection of Abrasive Wheels". For your safety, we suggest you benefit from the experience of others and carefully follow these rules.**

## DO

1. **DO** always **HANDLE AND STORE** wheels in a **CAREFUL** manner.
2. **DO VISUALLY INSPECT** all wheels before mounting for possible damage.
3. **DO CHECK MACHINE SPEED** against the established maximum safe operating speed marked on wheel.
4. **DO CHECK MOUNTING FLANGES** for equal and correct diameter.
5. **DO USE MOUNTING BLOTTERS** when supplied with wheels.
6. **DO** be sure **WORK REST** is properly adjusted.
7. **DO** always **USE A SAFETY GUARD COVERING** at least one-half of the grinding wheel.
8. **DO** allow **NEWLY MOUNTED WHEELS** to run at operating speed, with guard in place, for at least one minute before grinding.
9. **DO** always **WEAR SAFETY GLASSES** or some type of eye protection when grinding.
10. **DO TURN OFF COOLANT** before stopping to avoid creating an out of balance condition.

## DON'T

1. **DON'T** use a cracked wheel or one that **HAS BEEN DROPPED** or has become damaged.
2. **DON'T FORCE** a wheel onto the machine **OR ALTER** the size of the mounting hole - if wheel won't fit the machine, get one that will.
3. **DON'T** ever **EXCEED MAXIMUM OPERATING SPEED** established for the wheel.
4. **DON'T** use mounting flanges on which the bearing surfaces **ARE NOT CLEAN, FLAT AND FREE OF BURNS.**
5. **DON'T TIGHTEN** the mounting nut excessively.
6. **DON'T** grind on the **SIDE OF THE WHEEL** (see Safety Code B7.2 for exception).
7. **DON'T** start the machine until the **WHEEL GUARD IS IN PLACE.**
8. **DON'T JAM** work into the wheel.
9. **DON'T STAND DIRECTLY IN FRONT** of a grinding wheel whenever a grinder is started.
10. **DON'T FORCE GRINDING** so that motor slows noticeably or work gets hot.

**AVOID INHALATION OF DUST** generated by grinding and cutting operations. Exposure to dust may cause respiratory ailments. Use approved NIOSH or MSHA respirators, safety glasses or face shields, and protective clothing. Provide adequate ventilation to eliminate dust, or to maintain dust level below the Threshold Limit Value for nuisance dust as classified by OSHA.

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**This machine is intended for reel mower bedknife grinding ONLY. Any use other than this may cause personal injury and void the warranty.**

**To assure the quality and safety of your machine and to maintain the warranty, you MUST use original equipment manufactures replacement parts and have any repair work done by a qualified professional.**

**ALL operators of this equipment must be thoroughly trained BEFORE operating the equipment.**

**Do not use compressed air to clean grinding dust from the machine. This dust can cause personal injury as well as damage to the grinder. Machine is for indoor use only. Do not use a power washer to clean the machine.**

## Low Voltage Relay

**The grinder is equipped with a high-low voltage relay which is factory preset at 100-140 VAC. If the power supply line does not deliver 100-140 VAC power under load, the relay will open and trip out the starter. If this occurs, your power supply line is incorrect and must be correct before proceeding further with the grinder.**

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## DAILY MAINTENANCE BY THE OPERATOR

On a daily basis, clean the machine by wiping it off.
On a daily basis, remove all grinding grit from the traverse shafts and tooling bar area.
On a daily basis, check coolant tray fluid level. Fluid must be above the sump.
On a daily basis, inspect the machine for loose fasteners or components.
Contact your company's Maintenance Department if damaged or defective parts are found.

**DO NOT USE COMPRESSED AIR TO CLEAN GRINDING DUST FROM GRINDER.**

## SKILL AND TRAINING REQUIRED FOR SERVICING

This Service Manual is designed for technicians who have the necessary mechanical and electrical knowledge and skills to reliably test and repair the BG1500 Bedknife Grinder. For those without the background, service can be arranged through your local distributor.

This section presumes that you are already familiar with the normal operation of the Grinder. If not, you should read the front of this manual, or do the servicing in conjunction with someone who is familiar with its operation.

Persons without the necessary knowledge and skills should not remove the control box cover or attempt any internal troubleshooting, adjustments, or parts replacement.

If you have questions not answered in this manual, please call your distributor. They will contact the manufacturer if necessary.

## TORQUE REQUIREMENTS

Throughout this manual we refer to torque requirements as "firmly tighten" or the like. For more specific torque values, refer to the information below.

**Bolts Going Into a Nut, or Into a Thread Hole in Steel.**
Refer to the table at the right.

**Bolts Going Into a Thread Hole In Aluminum**
Use the Grade 2 values in the table at the right.

**Socket-Head Screws Going Into a Nut or Steel**
Use the Grade 8 values in the table at the right.

**Machine Screws**
No. 6 screws: 11 in.- lbs (0.125kg - m)
No. 8 screws: 20 in. - lbs (0.23 kg - m)
No. 10 screws: 32 in. - lbs (0.37 kg - m)

| | GRADE 2 | GRADE 5 | GRADE 8 |
|---|---|---|---|
| | | | |
| | SMOOTH HEAD | 3 MARKS on HEAD | 6 MARKS on HEAD |
| 1/4 In. thread | 6 ft-lbs (0.8 kg-m) | 9 ft-lbs (1.25 kg-m) | 13 ft-lbs (1.8 kg-m) |
| 5/16 In. thread | 11 ft-lbs (1.5 kg-m) | 18 ft-lbs (2.5 kg-m) | 28 ft-lbs (3.9 kg-m) |
| 3/8 In. thread | 19 ft-lbs (2.6 kg-m) | 31 ft-lbs (4.3 kg-m) | 46 ft-lbs (6.4 kg-m) |
| 7/16 In. thread | 30 ft-lbs (4.1 kg-m) | 50 ft-lbs (6.9 kg-m) | 75 ft-lbs (10.4 kg-m) |
| 1/2 In. thread | 45 ft-lbs (6.2 kg-m) | 75 ft-lbs (10.4 kg-m) | 115 ft-lbs (15.9 kg-m) |

# ASSEMBLY INSTRUCTIONS

Remove the sides, front, and back of the crate. Remove the plastic bag, shrink wrap and bubble wrap. Remove the metal clips that secure the grinder to the crate base. With a fork lift, raise the grinder from the wood base and set it in its final position. See FIG. 1 and2. Remove shipping straps.

**THE UNIT WEIGHS 750 LBS. (340 kg). TO LIFT, USE POWER EQUIPMENT.**

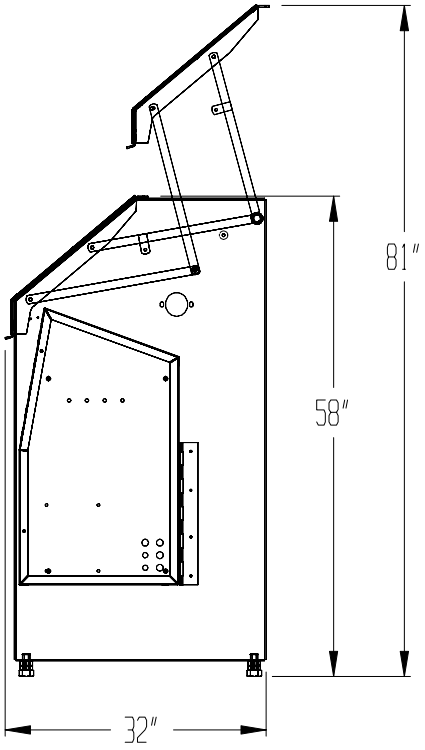



**FIG. 1**

## POSITION BASE

The BG1500 Bedknife Grinder will require an operating area of about 91" W x 72" D x 87" H (231 x 183 x 221 cm). The machine operator will operate the unit from the front of the machine. Position the base to allow sufficient operating room in front and right side of the machine. See FIG. 1 and 2.

The base should be placed on a relatively level concrete floor, with ample ceiling height to allow for the installation of the unit. Do not place the unit across two concrete slab seams or across a large crack.

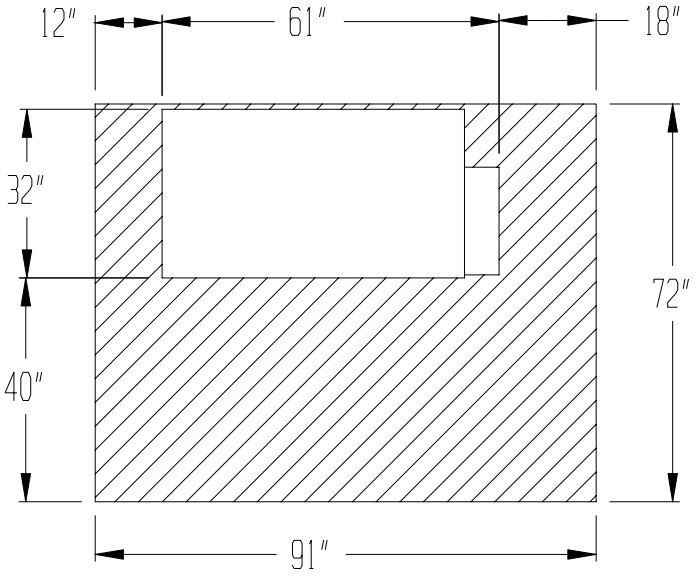



**FIG. 2**

# ASSEMBLY INSTRUCTIONS (Continued)

## LEVEL BASE

Place a level on the top of the traverse base and check the unit for level side to side. Adjust the leveling feet as necessary until the machine is level. See FIG. 3 .

Now place the level across the traverse base from front to rear. Adjust the leveling feet as necessary until the machine is level. See FIG. 3 .

When both front to back and side to side leveling procedures have been completed, thread the hex jam nuts up against the nut that is welded to the bottom of the machine. Be careful not to move the leveling feet when tightening the jam nut. See FIG. 3. Make certain that all four leveling feet are firmly contacting the floor.

Recheck that the machine is level after locking the four feet into position.

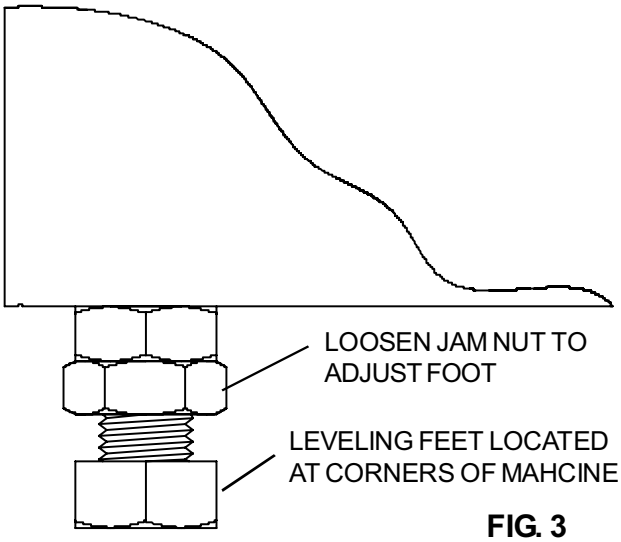
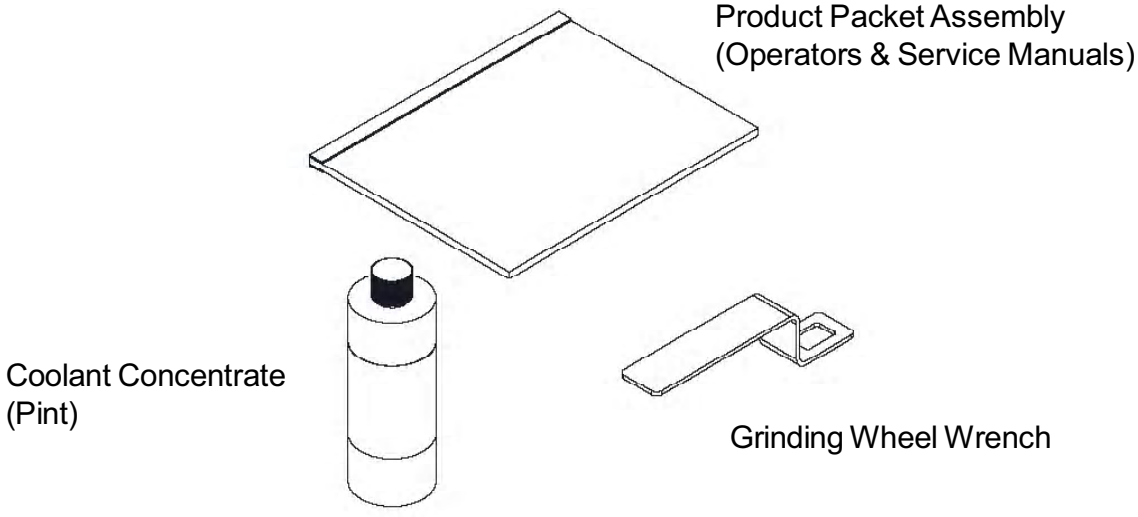



**FIG. 3**

Remove the carton and remove the contents from the carton onto a workbench.
The carton includes:



**ASSEMBLE THE FLOOD COOLANT SYSTEM**

1. The flood coolant system has been fully assembled at the factory. The only requirement is to fill the coolant tank.

2. Mix the coolant concentrate at a ratio of 50 parts water to 1 part concentrate. Refer also to the label on the coolant container. If the coolant tray is empty, this will take about 6.5 gallons of water and one pint of concentrate [24.6 liters of water, and 0.5 liter of concentrate].

**USE OF COOLANT OTHER THAN FACTORY SUPPLIED COOLANT CONCENTRATE IS NOT RECOMMENDED. ALTERNATIVE COOLANT CONCENTRATES MAY CAUSE CORROSION, GUMMING, OR GRINDING PROBLEMS.**

3. After the mixed coolant has been added, your coolant system is ready to operate. When you start the coolant pump for the first time you must adjust the coolant flow using the valve on the grinding head. See FIG 4.

**FIG. 4**

# ASSEMBLY INSTRUCTIONS (Continued)

**IMPORTANT GROUNDING INSTRUCTIONS**

In case of a malfunction or breakdown, grounding reduces the risk of electrical shock by providing a path of least resistance for electrical current.

This Grinder has an electrical cord with an equipment grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded according to all local or other appropriate electrical codes and ordinances.

Before plugging in the Grinder, make sure it will be connected to a supply circuit protected by a properly sized circuit breaker or fuse. SEE SERIAL NUMBER PLATE FOR FULL LOAD AMP RATING OF YOUR MACHINE.

Never modify the plug provided with the machine--if it won't fit the outlet, have a proper outlet and circuit installed by a qualified electrician.

**ALWAYS PROVIDE A PROPER ELECTRICAL GROUND FOR YOUR MACHINE. AN IMPROPER CONNECTION CAN CAUSE A DANGEROUS ELECTRICAL SHOCK. IF YOU ARE UNSURE OF THE PROPER ELECTRICAL GROUNDING PROCEDURE, CONTACT A QUALIFIED ELECTRICIAN.**

**APPLY POWER**

**BEFORE YOU APPLY POWER TO THE GRINDER, REFER TO THE "IMPORTANT GROUNDING INSTRUCTIONS".**

FIG. 5

**115 Volt Model Only.** Plug the control box power cord into a standard 115V AC 15-amp grounded receptacle. See FIG. 5.

**IT IS RECOMMENDED THAT THIS GRINDER HAS ITS OWN PERMANENT POWER CONNECTION FROM THE POWER DISTRIBUTION PANEL, WITH NO OTHER MAJOR POWER DRAW EQUIPMENT ON THE SAME LINE.**

**IT IS REQUIRED THAT THE POWER DELIVERED TO THIS GRINDER IS 115 VAC & 15 AMPS. THE TOLERANCE ON THIS POWER REQUIREMENT IS +/- 5%. THEREFORE THE MINIMUM VOLTAGE REQUIREMENT IS 109VAC WITH 15 AMPS. VOLTAGE MUST BE CHECKED WITH ALL EQUIPMENT UNDER LOAD (OPERATING) ON THE CIRCUIT.**

**DO NOT OPERATE THIS GRINDER WITH AN EXTENSION CORD.**

**DO NOT OPERATE THIS GRINDER ON A GROUND FAULT INTERUPTER (GFI) CIRCUIT. THE (GFI) WILL TRIP CONSTANTLY.**

**PROPER GROUNDING OF THE RECEPTACLE GROUND IN YOUR BUILDING MUST BE VERIFIED. IMPROPER GROUNDING IN YOUR BUILDING MAY CAUSE THE GRINDER TO MALFUNCTION.**

The grinder is equipped with a high-low voltage relay which is factory preset at 100-140 VAC. If the power supply line does not deliver 100-140 VAC power under load, the relay will open and trip out the starter. If this occurs, your power supply line is incorrrect and must be correct before proceeding further with the grinder.

WARNING
FACTORY PRESET.
FLASHING GREEN LIGHT INDICATES LOW VOLTAGE.
FLASHING RED LIGHT INDICATES HIGH VOLTAGE DELIVERED TO GRINDER

When installing the grinder, the following guidelines should be used to establish the wire size between the power panel in your building and the grinder receptacle. Note that the wiring in your building must be per code between main power panels and sub panels.

**FOR 15 AMP RATED LARGE MACHINES BUILDING WIRING**

For 0 to 30 Feet ( 0 to 9 m) from panel to receptacle = Use 14 Ga. (2.5 mm) Wire.
For 30 to 50 Feet (9 to 15 m) from panel to receptacle = Use 12 Ga. (4.0mm ) Wire.
For 50 to 80 Feet (15 to 24 m) from panel to receptacle = Use 10 Ga. (6.0 mm) Wire.
For 80 to 140 Feet (24 to 42 m) from panel to receptacle = Use 8 Ga. (10.0 mm) Wire.

# MAINTENANCE

DAILY MAINTENANCE IS SPECIFIED ON PAGE 6, AND IS TO BE PERFORMED BY THE OPERATOR.

LISTED BELOW ARE PERIODIC MAINTENANCE ITEMS TO BE PERFORMED BY YOUR COMPANY'S MAINTENANCE DEPARTMENT:

## PERIODIC MAINTENANCE

1. Clean the Traverse Rails by wiping down with CRC3-36 or equivalent on a weekly basis.

2. Replace the four foam rail wipers as necessary and at least every 6 months of operation. (FIG. 6)

3. Clean the interior of the Coolant Tray as necessary and at least every 6 months.

4. Clean and lubricate the traverse bearings per the procedure below as necessary and at least every 6 months.

5. Check the brushes on the traverse drive motor once every 36 months. Replace as necessary.

**FIG. 6**

## LUBRICATION OF LINEAR BEARINGS

STEP 1 – Thoroughly clean the both traverse shafts.

STEP 2 – Flood spray both shafts with CRC 3-36 until the lubricant is dripping off the shafts. **(Do not use a Teflon-based lubricant)** Then run the grinding head assembly back and forth through the full range of travel. This will remove the dust and deposits from inside the bearings. Repeat spraying the shafts, moving the grinding head, and wiping the shafts clean until the lubrication is clear of deposits when moving the grinding head back and forth.

STEP 3 – With a clean rag, wipe off the excess amount of lubricant from the shafts. Run the grinding head assembly through the full range of travel and wipe the shafts after each traverse. Repeat until the shafts feel dry. This completes the lubrication process.

**IMPORTANT:**
If the unit will be shut down for an extended period of time, more than four weeks, then the shafts and other appropriate parts of the unit should be flooded with lubricant and that lubricant left in place until the unit is brought back into service. When the unit is brought back into service the full lubrication procedure as stated above should be repeated.

## CLEANING AND MAINTENANCE GUIDELINES FOR POLYCARBONATE WINDOWS

**Cleaning Instructions**

**DO NOT USE GASOLINE**
**Adherence to regular and proper cleaning procedures is recommended to preserve appearance and performance.**

**Washing to Minimize Scratching**

Wash polycarbonate windows with a mild dish washing liquid detergent and lukewarm water, using a clean soft sponge or a soft cloth. Rinse well with clean water. Dry thoroughly with a moist cellulose sponge to prevent water spots. Do not scrub or use brushes on these windows. Also, do not use butyl cellosolve in direct sunlight.

Fresh paint splashes and grease can be removed easily before drying by rubbing lightly with a good grade of VM&P naphtha or isopropyl alcohol. Afterward, a warm final wash should be made, using a mild dish washing liquid detergent solution and ending with a thorough rinsing with clean water.

**Minimizing Hairline Scratches**

Scratches and minor abrasions can be minimized by using a mild automobile polish. Three such products that tend to polish and fill scratches are Johnson paste Wax, Novus Plastic Polish #1 and #2, and Mirror Glaze plastic polish (M.G. M10). It is suggested that a test be made on a corner of the polycarbonate window with the product selected following the polish manufacturer's instructions.

**Some Important "DON'TS"**

- **DO NOT** use abrasive or highly alkaline cleaners on the polycarbonate windows.
- **Never** scrape polycarbonate windows with squeegees, razor blades or other sharp instruments.
- Benzene, gasoline, acetone or carbon tetrachloride should **NEVER** be used on polycarbonate windows.
- **DO NOT** clean polycarbonate windows in hot sun or at elevated temperatures.

**Graffiti Removal**

- Butyl cellosolve, (for removal of paints, marking pen inks, lipstick, etc.)
- The use of masking tape, adhesive tape or lint removal tools works well for lifting off old weathered paints.
- To remove labels, stickers, etc., the use of kerosene, VM&P naphtha or petroleum spirits is generally effective. When the solvent will not penetrate sticker material, apply heat (hair dryer) to soften the adhesive and promote removal.

**GASOLINE SHOULD NOT BE USED!**

# ADJUSTMENTS

## CARRIAGE LINEAR BEARING REPLACEMENT

**STEP 1--**Remove the four screws of one linear bearing and slide the linear bearing off the end of the carriage shaft.

**STEP 2--**Insert a new linear bearing onto the end of the carriage shaft with the tension adjustment screw pointing outward. See FIG. 7.

**STEP 3**--Adjust the tension screw of the linear bearing so when you radially rotate the linear bearing around the carriage shaft there should be no free play between the linear bearing and the carriage shaft.

**NOTE:** Tension is too tight if you feel a cogging action when you rotate the linear bearing around the shaft. This cogging is from the skidding of the bearing on the shaft and indicates the tension screw is too tight. Sliding the bearing block back and forth should be a smooth uniform motion.

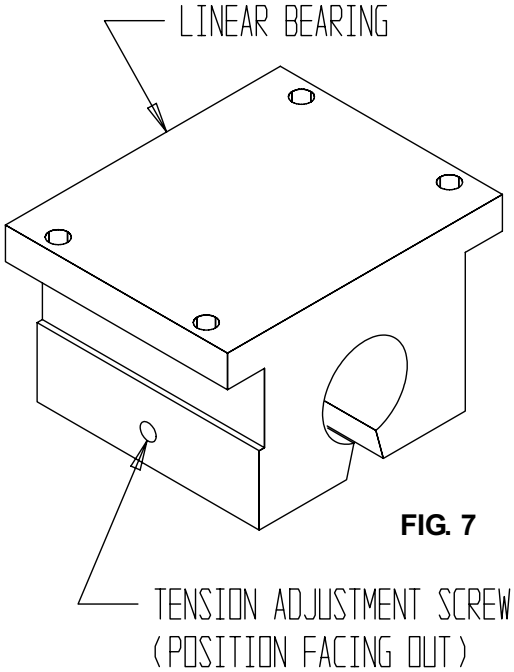



**FIG. 7**

**SETTING THE BEARING TENSION CORRECTLY IS CRITICAL TO PROPER GRINDING. BEARINGS WHICH ARE TOO TIGHT OR TOO LOOSE WILL CAUSE POOR GRIND QUALITY. ALSO, BEARINGS WHICH ARE TOO TIGHT WILL HAVE SUBSTANTIALLY SHORTER LIVES AND MAY DAMAGE THE SHAFT.**

**STEP 4--**Slide linear bearing under carriage and attach with the four screws.

**Repeat Steps 1 through 3 with the other two linear bearings.**

**STEP 5--**After all three linear bearings are secured to the carriage, check for correct bearing tension. The bearing tension is correct when you try to lift the carriage and can feel no carriage movement. If there is movement this means there is up and down free play. The most dependable method of checking free play is to use a magnetic base dial indicator attached to the traverse frame weldment and a bearing testing fork 5NT3706055. Read the vertical movement above each bearing. This movement should be within .003" [.07 mm]. See FIG 8.
In addition, when there should only be approximately 3lbs [13 Newtons] of force required to pull the carriage from side to side with the belt clamp disengaged. The grinding head assembly should have very uniform resistance through its full range of travel.

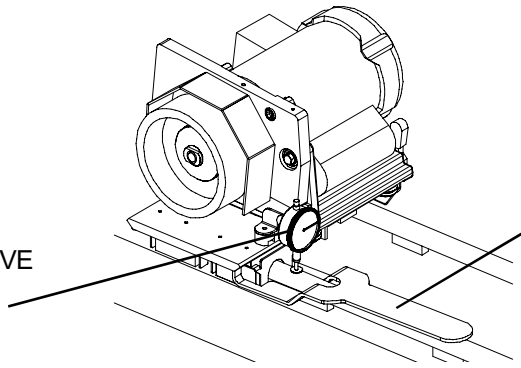

DIAL INDICATOR ABOVE BEARING TO ADJUST BEARINGS
BEARING TESTING FORK 5NT3706055 CAN BE USED TO APPLY THE CORRECT UPWARD FORCE FOR CHECKING THE BEARINGS.

**FIG. 8**

**TO ELIMINATE INFEED HANDWHEEL BACKLASH**

If there is backlash in the Grinder Head Infeed handwheel verify the following adjustements are correct:

1. Washers behind the handwheel:

   A. Remove the calibration ring setscrew and rotating the calibration ring to access the handwheel setscrew. Loosen the handwheel setscrew (about half a turn).

   B. Hold the handwheel and torque the hex lock nut which secures the handwheel to 100 in. lbs. [1.15 kg-m], then back off 1/2 turn.

   C. Verify that the gap between the wave washer and flat washer is .015 in. [.04mm]. See FIG10. Adjust the hex lock nut if necessary.

   D. Tighten the setscrew holding the handwheel to the shaft. Install and tighten the calibration ring setscrew.

2. Check the nylon ball tension:

   Check the nylon ball tension on the adjustment shaft threads at the grinding head slide. See FIG. 9. When you turn the handwheel the grinding head slide should move without any freeplay. If there is free play, tighten the setscrew that pushes the nylon ball against the acme thread of the adjustment shaft. The nylon ball preloads the free play out of the threaded joint between the adjustment shaft and the tooling bar slide block. Tighten the setscrew unitl this is zero freeplay in the shaft.

   **DO NOT over tension the setscrew as the adjuster will be difficult to turn.**

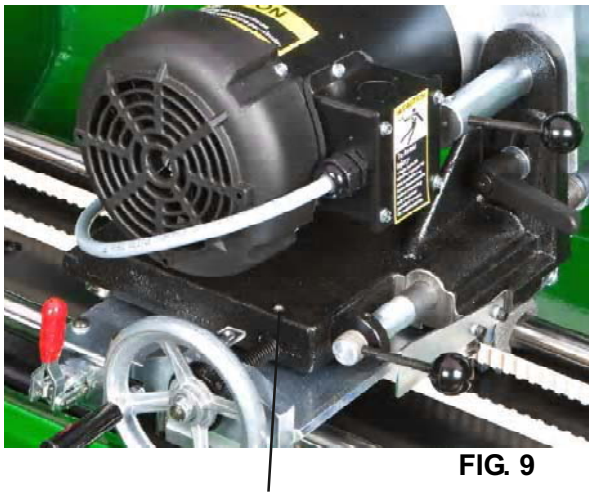


**FIG. 9**

**Setscrew with nylon ball**

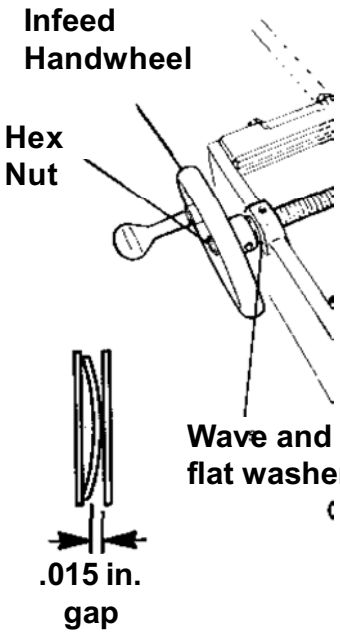



**FIG. 10**

**TO ELIMINATE ALIGNMENT ADJUSTMENT BACKLASH**

If there is backlash in the alignment adjustment handwheels (FIG. 47), verify the following adjustements are correct:

1. Washers behind the handwheel:

   A. Loosen the handwheel setscrew (about half a turn).

   B. Hold the handwheel and torque the hex lock nut which secures the handwheel to 100 in. lbs. [1.15 kg-m], then back off 1/2 turn.

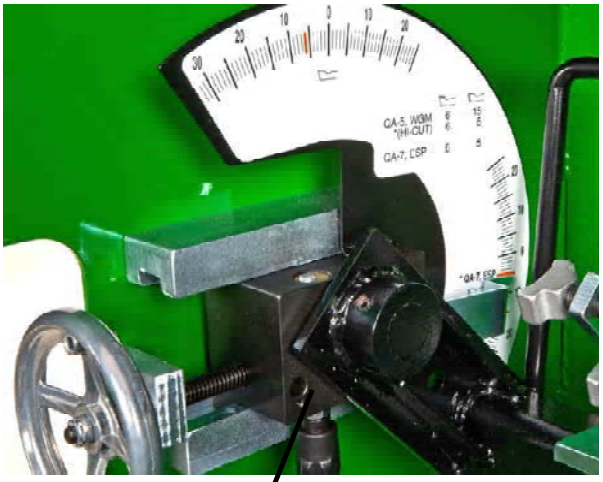
   C. Verify that the gap between the wave washer and flat washer is .015 in. [.04mm]. See FIG12. Adjust the hex lock nut if necessary.

   D. Tighten the setscrew holding the handwheel to the shaft.

2. Check the nylon ball tension:

   On the tooling bar adjustment block there is a nylon ball / setscrew combination used to set the tension on the shaft slide block. See FIG. 11. When you turn the handwheel the tooling bar block slide should move without any freeplay. If there is free play, tighten the set screw that pushes the nylon ball against the acme thread on the adjustment shaft. The nylon ball adjusts the freeplay between the adjustment shaft and the tooling bar slide block. Tighten the setscrew unitl this is zero freeplay in the shaft.

   **DO NOT over tension the setscrew as the adjuster will be difficult to turn.**



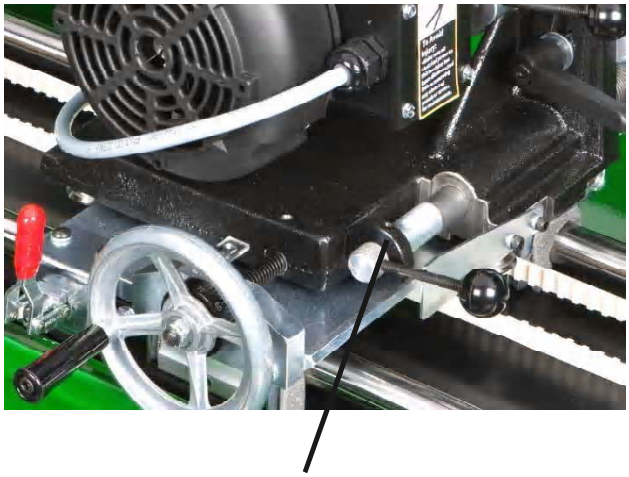
Setscrew and Nylon

**FIG. 11**

**.015 in. gap**

**TO ELIMINATE MOVEMENT IN THE DIAMOND DRESSER ADJUSTMENT COLLAR**

The adjustment collar on the diamond dresser (See FIG. 49) has a nylon ball and setscrew to put a holding drag on the diamond dresser shaft. If it becomes necessary to increase the collar drag, tighten the setscrew. If the adjustment collar is difficult to turn, reduce the drag by loosening the setscrew.



Setscrew and Nylon Ball

**FIG. 13**

### ADJUSTING THE PRELOAD TENSION ON THE SMALL GRINDING HEAD SLIDE VEE ROLLERS

There are 3 vee rollers that support the grinding head. The 2 vee rollers on the left side are fixed and the vee roller on the right side is adjustable. To set the correct preload on the right side adjuster, tighten the setscrew in FIG. 14 until the spring is fully compressed solid, then back off 1/2 turn.

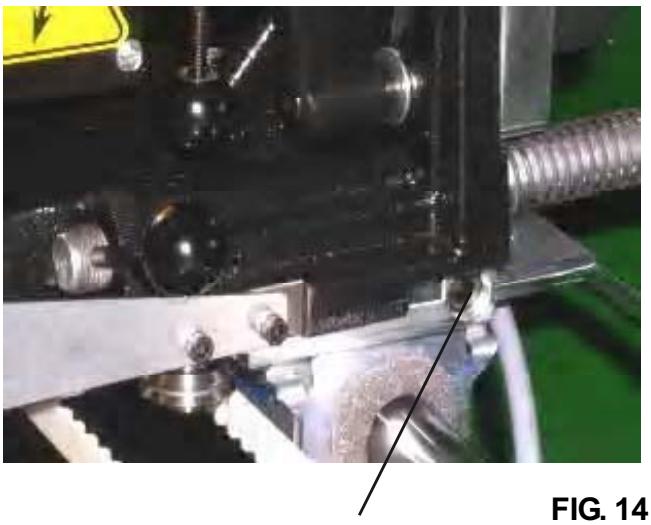



**FIG. 14**

### TO ADJUST THE PROXIMITY SWITCHES

For the proximity switches to work properly a distance of 3/16 in. +/- 1/32 [4.75 mm +/- 0.75] must be maintained between the top of the switch and the actuator bracket on the bottom of the carriage. See FIG. 51.

To adjust the clearance, loosen one of the hex nut and tighten the other.

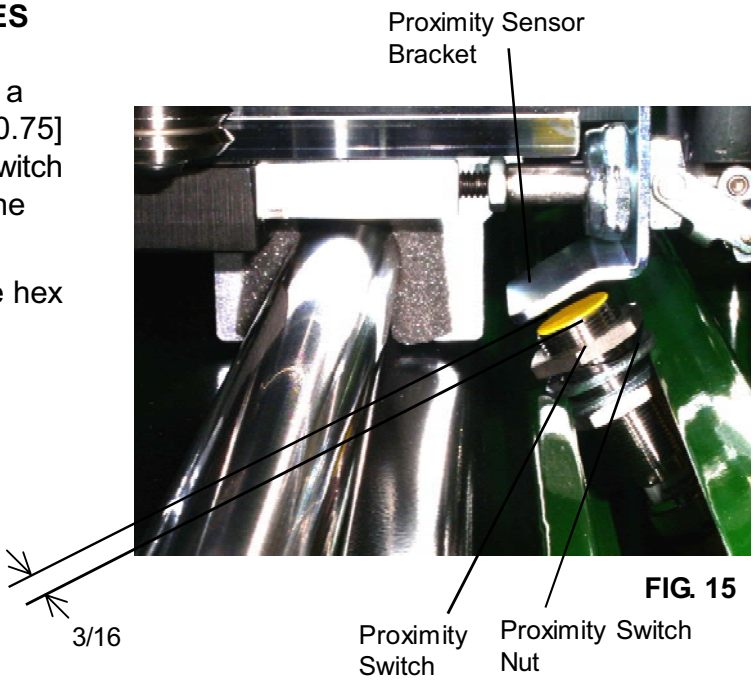



**FIG. 15**

## TRAVERSE BELT TENSION

To adjust the tension on the traverse belt tighten the screws and nuts located at the left side of the traverse belt. Tighten until the compression springs measure 3/4" [19 mm]. See FIG. 16. If the springs are not tensioned equally, uneven loading on the traverse system may cause premature failure of the components.

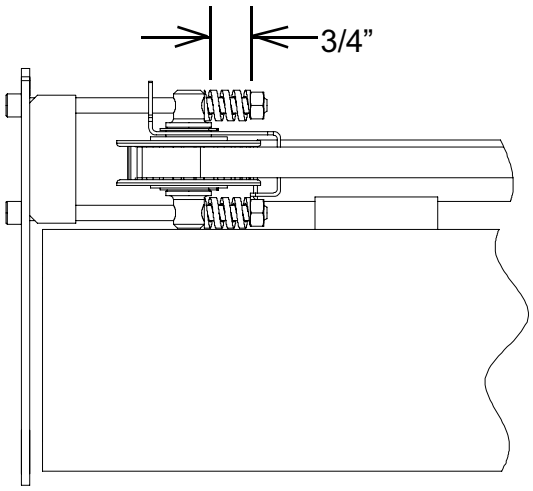



FIG. 16

**DO NOT OVERTIGHTEN. OVERTIGHTENING COULD DAMAGE THE BELT OR TRAVERSE DRIVE SYSTEM.**

## TRAVERSE CLAMP FORCE

If the traverse clamp is slipping during regular operation it may become necessary to adjust the clamp tip location. To adjust the clamp tip, loosen the jam nut and rotate the clamp tip. The clamp tip should be adjusted to the dimension specified in FIG 17. To measure, move the traverse belt out of the way. Measure the clamped distance from the clamp tip to the clamping block (shoe). To secure the new position, jam the nut against the clamp being careful not to move the clamp tip.

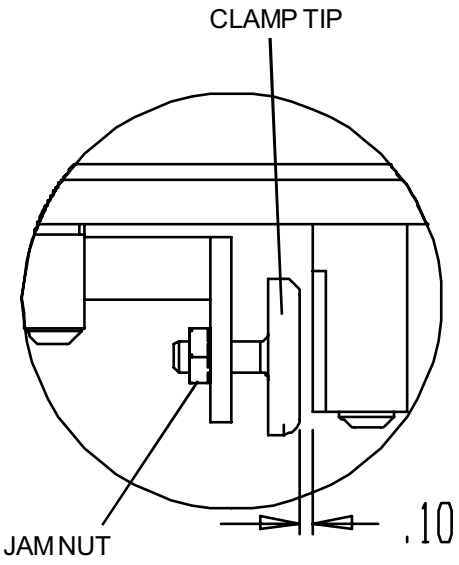



FIG. 17

**THE TIP HAS BEEN FACTORY SET SO THAT IT WILL SLIP IF THE GRINDING HEAD ASSEMBLY COMES IN CONTACT WITH SOMETHING. CAUTION SHOULD BE USED AS ADJUSTING THE TIP WILL AFFECT THE SLIP LOAD AND COULD DAMAGE THE CLAMP TIP, BELT OR TRAVERSE DRIVE SYSTEM.**

# ADJUSTMENTS (Continued)

## POTENTIOMETER ADJUSTMENTS TRAVERSE DRIVE CONTROL (TDC)

Min. Speed--Factory set at full (CCW) 8:30. Do not change this setting.

(Right Traverse) Forward Torque--Factory set at full (CW) 4:30. Do not change this setting.
(Left Traverse) Reverse Torque--Factory set at full (CW) 4:30. Do not change this setting.

IR COMP--Factory set to 9:00. IR COMP is current (I) resistance (R) compensation (COMP).
IR COMP adjusts the output voltage of the drive which balances load to motor RPM. Regulation of a traverse motor may be improved by slight adjustment of the IR COMP trim pot clockwise from its factory-set position. Overcompensation causes the motor to oscillate or to increase speed when fully loaded. If you reach such a point, turn the IR COMP trim pot counterclockwise until the symptoms disappear.

Max. Speed--Set at 3:30 for maximum voltage of 90 Volts DC to the traverse motor. When voltage is above 90 volts DC, the traverse motor will start to pulsate and not run smoothly.

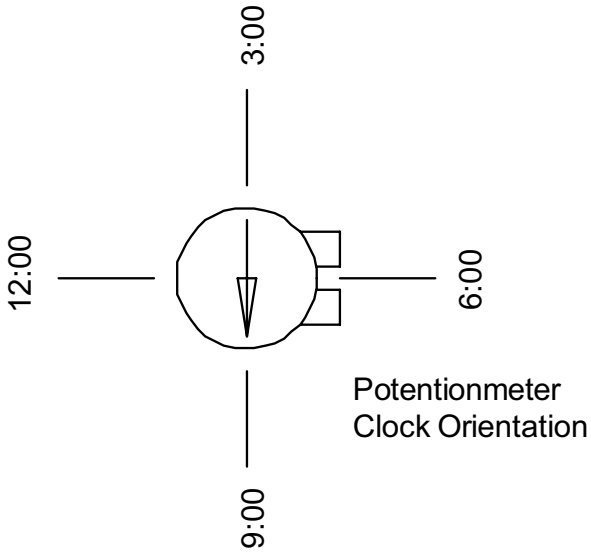
(Right Traverse) Forward Acceleration--Factory set at full (CCW) 8:30. Do not change this setting.
(Left Traverse) Reverse Acceleration--Factory set at full (CCW) 8:30. Do not change this setting.

(DB) Dead Band is the potentiometer setting for the 50 or 60 Hz cycle control. Factory set to 9:00, works for both 50 and 60 Hz. Do not change this setting.

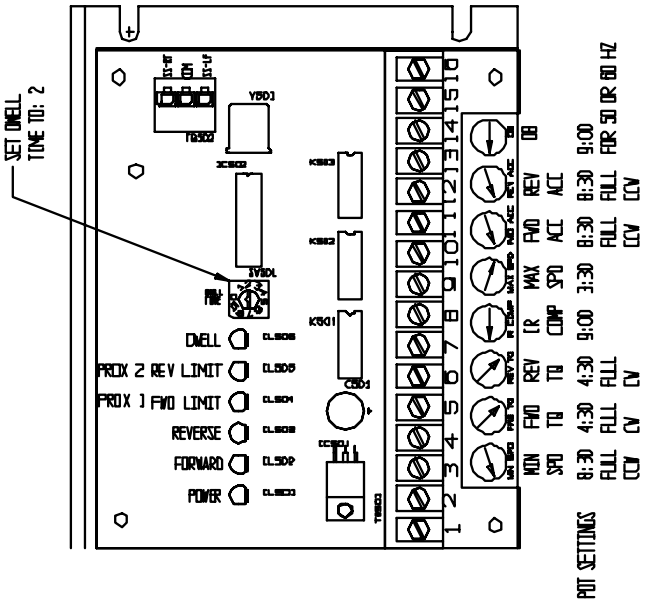
Calibrating the **DWELL TIME** rotary DIP switch adjusts the amount of time the process remains in the stop position after a limit switch is actuated. The **DWELL TIME** range is adjustable from 0 - 4 seconds. A DIP switch setting of 0 sets the **DWELL TIME** to 0 seconds, while a setting of 8 sets the **DWELL TIME** to 4 seconds. Dwell time is preset to #2 setting for a 1 second dwell time when reversing at each end of stroke.

**Diagnostic LED's indicate the function that is currently being performed:**

- **POWER indicates that ac power is being applied to the control.**
- **FORWARD indicates that the process is running in the forward direction (traversing left).**
- **REVERSE indicates that the process is running in the reverse direction (traversing right).**
- **PROX 1 FWD LIMIT lights when the forward limit switch is actuated (left prox).**
- **PROX 2 REV LIMIT lights when the reverse limit switch is actuated (right prox).**
- **DWELL lights when the process remains stopped after a proximity switch is actuated.**




Potentionmeter
Clock Orientation



# ELECTRICAL TROUBLESHOOTING

## SKILL AND TRAINING REQUIRED FOR ELECTRICAL SERVICING

This Electrical Troubleshooting section is designed for technicians who have the necessary electrical knowledge and skills to reliably test and repair the BG1500 electrical system. For those without that background, service can be arranged through your local dealer.

This section presumes that you are already familiar with the normal operation of the Grinder. If not, you should read the Operator's Manual, or do the servicing in conjunction with someone who is familiar with its operation.

Persons without the necessary knowledge and skills should not open the control panel or attempt any internal troubleshooting, adjustments, or parts replacement.

If you have any question not answered in this manual, please call your local dealer.

## WIRE LABELS

All wires on the BG1500 have a wire label at each end for troubleshooting. The wire label has a code which tells you wiring information. The wire label has a seven position code. The first two or three digits are the wire number: 01-199. The next three numbers or letters are the code for the component to which the wire attaches. Example: TDC for Traverse Drive Control. The last two numbers or letters are the number of the terminal on the component to which the wire attaches.

TERMINAL BLOCKS:

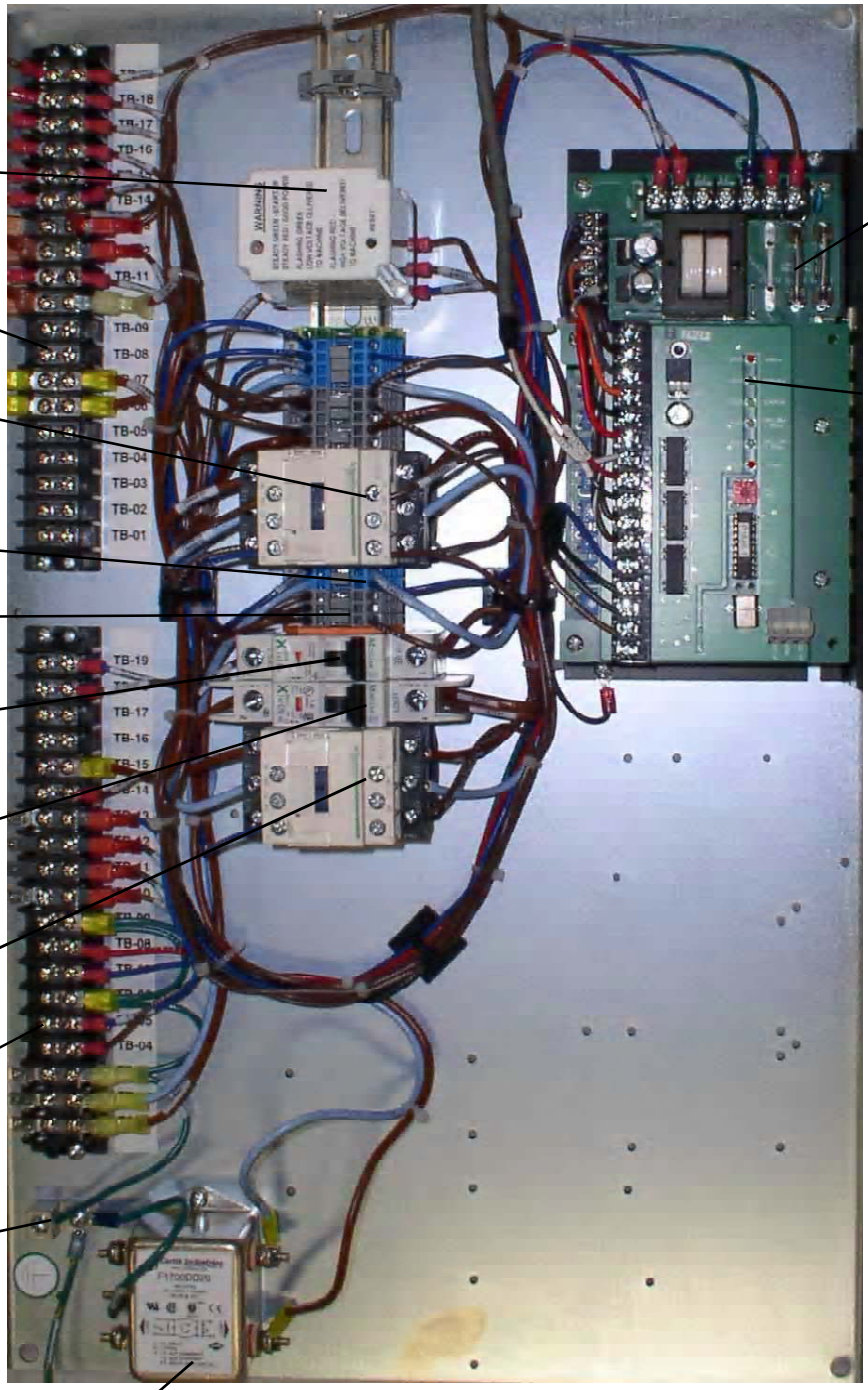
To insert or remove a wire from the terminal block insert a small screw driver into the square hole. Then insert or remove wire from the round hole. Remove screwdriver to lock the wire in place.

Note the square hole can also be used when checking for voltages. The probe tip of the multimeter can be inserted into the square hole to take readings.

## TROUBLESHOOTING INDEX


AC Main Power Controls ..... Page 24-25
Grinding Motor Controls ..... Page 26-28
Coolant Pump Controls ..... Page 28
Traverse Drive Controls-w/prox ..... Page 29-33
Mechanical Troubleshooting ..... Page 34-35

**CONTROL PANEL**
**located on the right side of the machine.**


Low Voltage Relay (LVR)
Terminal Strip #2 (TB2)
Magnetic Contactor (MAG)
Blue Terminal Blocks (TBB)
Grey Terminal Blocks (TBG)
Secondary Circuit Breaker (SCB)
Main Circuit Breaker (MCB)
Grinding Motor Relay (REL)
Termial Strip #1 (TB1)
Main Ground Lug
AC Filter (FTR)
Traverse Drive Control Board FUSES 3A Slow Blow
Traverse Drive Control Board (TDC)

# ELECTRICAL TROUBLESHOOTING (Continued)

**PROBLEM--AC Main Power Controls: no electrical power to control panel.**

**Verify all wires shown on the wiring diagram are correct and pull on wire terminals with approximately 3 lbs force to verify there are no loose terminal connections and/or no loose crimps between the wire and the terminal. If problem persists, test as listed below.**

| Possible Cause | Checkout Procedure | |
|---|---|---|
| Emergency Stop Button (ESS) is Depressed | **A.** Pull Up on ESS Button | Machine works<br>Yes--end troubleshooting<br>No--go to Step **B.** next |
| You must push the System Start Switch (SSS) to get power to control Panel | **B.** Listen for the Magnetic Starter (MAG) contacts to pull in with a clunk | Machine works<br>Yes--end troubleshooting<br>No--go to step **C.** next. |
| Main Power Cord is not plugged in | **C.** Plug in main power cord | Machine works<br>Yes--end troubleshooting<br>No--go to step **D.** next. |
| Guard doors must be closed and ALL Switches **MUST** be turned **OFF** for contactor to pull in. | **D.** Close guard doors and turn off all switches. | Machine works<br>Yes--end troubleshooting<br>No--go to step **E.** next. |
| Main 15 amp outlet circuit breaker has tripped | **E.** Check circuit breaker in your building and reset if necessary. (Check wall outlet with a light to make sure it works) | Machine works<br>Yes--end troubleshooting<br>No--but light works in outlet--go to Step **F.** next.<br>No--but light does not work in outlet. You must solve your power delivery problem independent of machine. |
| No 120 Volts AC power to Filter (FTR) | **F.** Check for 120V at Cord into FTR (Power Cord #32) | FTR "Line" Terminals for 120 Volts AC<br>Yes--Go to Step **G**. next.<br>No--Replace Power Cord-5NT6059054 |
| No 120 Volts AC power out of Filter | **G.** Check for 120V out of FTR | FTR "Load" Terminals for 120 Volts AC<br>Yes--Go to Step **H**. next.<br>No--Replace Filter |
| No 120 Volts AC power to Main Circuit Breaker (MCB) | **H.** Check for 120V to MCB | MCB Bottom Terminal to Terminal Block 4 (Blue) for 120 Volts AC<br>Yes--Go to Step **I**. next.<br>No--Check wires & replace if needed. |
| No 120 Volts AC power from Main Circuit Breaker (MCB) | **I.** Check for 120V to MCB | MCB Top Terminal to Terminal Block 4 (Blue) for 120 Volts AC<br>Yes--Go to Step **J**. next.<br>No--Flip Switch on MCB to "ON" - Machine works-- end trouble shooting<br>Machine does not work-- replace MCB |

# ELECTRICAL TROUBLESHOOTING (Continued)

| ***Possible Causes*** | ***Checkout Procedure*** | |
|---|---|---|
| No 120 Volts AC power to Secondary Circuit Breaker (SCB) 6 Amp. | **J.** Check for 120V to SCB | SCB (03SCB--) to nuetral (blue) terminal out of FTR for 120VAC<br>Yes--Go to Step **K.** next.<br>No--Check wires & replace if needed. |
| No 120 Volts AC power from Secondary Circuit Breaker (SCB) 6 Amp. | **K.** Check for 120V from SCB | SCB (67SCB--) to nuetral (blue) terminal out of FTR for 120 VAC<br>Yes-- Go to Step **L.** next.<br>No--Flip Switch on SCB to "ON"-Machine works--end of troubleshooting. Machine does not work--replace SCB |
| 120 Volts AC power not delivered to Terminal Strip | **L.** Check for 120 Volts AC at terminal strip. | Terminal "11" on Terminal Strip 2 "07TB2-11" to Terminal Block 4 (Blue) for 120 Volts AC<br>Yes--Go to Step **M**. next.<br>No--Check wires #7 & #3, Check Jumper on Terminal Blocks 1-3. |
| Grinding Motor Switch (GMS) not working | **M.** Check for 120 Volts AC at GMS Terminals 1 | Measure 120 volts AC from GMS Terminal 1 to Term Block 4(Blue)<br>Yes--Go to Step **N**. next. No--Flip Switch and check again-Works--Switch is upside down.<br>Does not work-- Check wiring/Verify Continuity/ Replace Switch |
| Bad Emergency Stop Switch (ESS) | **N.** Check voltage after the (ESS) MAKE SURE SWITCH IS PULLED UP! | Measure 120 Volts AC from (ESS) term 2 to Term Block 4(Blue)<br>Yes--Go to Step **O.** next<br>No--Check wire for continuity, then verify switch continuity. If bad replace ESS contactor (NC) |
| Bad System Start Switch (SSS) | **O.** Hold in SSS and Check voltage after the (SSS) | Measure 120 Volts AC from (SSS) term 3 to Term Block 4(Blue)<br>Yes--Go to Step **P.** next<br>No--Check wire for continuity, then verify switch continuity. If bad replace SSS contactor (NO) |
| Low Voltage Relay (REL) not operating | **P.** Hold in SSS and Check voltage at LVR. LVR must be installed in 8-pin socket. | Measure 120 Volts AC from LVR term 8 to Term Block 4(Blue)<br>Yes--Go to Step **Q.** next<br>No--Check for 120 Volts AC from LVR term 6 to term 7.<br>Yes--Verify Continuity of term 1 to term 8 on LVR. Replace LVR if bad. No--Verify Continuity of Wires. |
| Bad Main Contactor (MAG) | **Q.** Hold in SSS and Check voltage at MAG A1 & A2. | Measure 120 Volts AC from MAG Term A1 to Term A2<br>Yes--MAG Should pull in with clunk, if not replace MAG.<br>No--Verify Continuity of Wires. |

# ELECTRICAL TROUBLESHOOTING (Continued)

***PROBLEM*--Machine Shuts off when you turn on Grind motor switch.**

| ***Possible Cause*** | ***Checkout Procedure*** | |
|---|---|---|
| Guard Door is open. | **A.** Close the guard doors. | Machine works<br>Yes--end troubleshooting<br>No--go to Step **B.** next |
| Low Voltage Relay is tripping. | **B.** Power delivered to the grinder is inadequate. Verify that adequate power is delivered to the grinder. See page 27 of the manual. Fix the problem with building power. | Machine works<br>Yes--end troubleshooting<br>No--go to Step **C.** next |
| Door Safety Switch is not aligned | **C.** Check Alignment of Door Safety Switch on guard door. | Check aligment of door switch.<br>Yes--end troubleshooting<br>No--Go to Step **D**. next. |
| Door Safety Switch is not working properly. | **D.** Verify Door Swith is Working properly. | Disconnect door safety switch cord at terminal 14 and 15 on Terminal Strip 1. Verify Conituity of switch with door closed.<br>Yes--Reconnect Terminals and verify continuity of wires.<br>No--Verify continuity of cord and replace cord or switch. |

***PROBLEM*--(MAG) turns on only with System Start Switch held in.**

| ***Possible Cause*** | ***Checkout Procedure*** | |
|---|---|---|
| No Power to MAG holding Contact | **A.** Check voltage to MAG holding contact in. | Measure 120 Volts AC at MAG term T3 to Term Block 4(Blue) with E-Stop Pulled out. (do NOT press start button while checking.)<br>Yes--Go to Step **D**. next.<br>No--Verify continuity of wiring to MAG T3. |
| MAG holding contact has failed | **B.** Verify the magnetic starter (MAG) holding contact is working. | Disconnect Wire to MAG L3 and Measure 120 Volts AC from MAG term L3 to Term Block 4(Blue) Press and hold Green Start button to hold in MAG contacts while checking.<br>Yes--Verify continuity of wiring from MAG L3<br>No--Replace MAG. |

# ELECTRICAL TROUBLESHOOTING (Continued)

**PROBLEM-- Grinding motor not working.**

**Assuming (SSS) System Start Switch is on with 120 volts AC to control panel and all other functions are working.**

**Verify all wires shown on the wiring diagram are correct and pull on wire terminals with approximately 3 lbs force to verify there are no loose terminal connections and/or no loose crimps between the wire and the terminal. If problem persists, test as listed below.**

| **Possible Cause** | | |
|---|---|---|
| Grinding Motor Switch (GMS) is not on | **A.** Turn switch on | Grinding Motor works<br>Yes--end troubleshooting<br>No--go to Step **B.** next |
| Guard door is not closed | **B.** Close Front guard doors (and rear ramp - lift option) | Grinding Motor works<br>Yes--end troubleshooting<br>No--go to Step **C.** next |
| 10 Amp Circuit Breaker (CB) is tripped | **C.** Check 10 amp CB on front of Control panel. Press in if tripped. | Grinding Motor works<br>Yes--end troubleshooting<br>No--go to Step **D.** next |
| Grind Motor Switch (GMS) not working | **D.** Check for power to GMS | GMS term 5 to Terminal Block 4 (Blue) for 120 Volts AC<br>Yes--go to Step **E.** next<br>No--With power off, check continuity of wires to GMS. |
| | **E.** Check for power from GMS | With GMS ON , check GMS Term 6 to Terminal Block 4 (Blue) for 120 Volts AC.<br>Yes--Go to Step **F.** next<br>No--replace GMS |
| Grinding Motor Relay not working | **F.** Check for power to relay Coil (Relay should click when GMS is turned on.) | Check for 120 Volts (AC) from A1 to A2 of Grinding motor Relay.<br>Yes--If Relay does not pull in with click, replace Relay, if it does Go to Step **G.** next<br>No-- check continuity of wires to Grinding motor Relay. |
| No Power to Relay Contacts | **G.** Verify Power to Relay Contacts | (REL) Term L1 to Term L2 for 120 Volts (AC)<br>Yes--Go to Step **H.** next<br>No--Check wires to REL Term L1 & L2 |

# ELECTRICAL TROUBLESHOOTING (Continued)

| Possible Cause | Checkout Procedure | |
|---|---|---|
| Bad Contacts in Grinding motor Relay | **H.** Verify power out of Grinding Motor Relay. | With relay pulled in (click) check (REL) Term T1 to Term T2 for 120 Volts (AC)<br>Yes--Go to Step **I.** next<br>No--Replace Gringing Motor Relay |
| Bad Circuit Breaker | **I.** Verify Power out of Circuit Breaker. | Check for 120 Volts (AC) from terminals TB2-6 to Terminal Block 4 (Blue)<br>Yes--Go to Step **J.** next<br>No--Check circuit breaker for continuity. Verify wiring and replace if needed. |
| Bad Grinding Motor | **J.** Verify Power to Grinding motor Cord. | Verify wiring at terminals 1, 2 & 3 on Terminal Strip 1. Check TB1-1 to TB1-2 for 120 Volts (AC).<br>Yes-- Check terminals on motor cord. If tight replace motor.<br>No-- Check wires from Grinding Motor Relay and Circuit Breaker to Terminal Strip 1. |

**PROBLEM-- Coolant Pump not working.**

| Possible Cause | | |
|---|---|---|
| Coolant Pump Switch (CPS) is not on. | **A.** Turn switch | Coolant Pump works<br>Yes--end troubleshooting<br>No--go to Step **B.** next |
| Coolant flow valve closed. | **B.** Open coolant flow valve. | Coolant Pump works<br>Yes--end troubleshooting<br>No--go to Step **C.** next |
| 2 Amp Circuit Breaker (CB) is tripped | **C.** Check 2 amp CB on front of Control panel. Press in if tripped. | Coolant Pump works<br>Yes--end troubleshooting<br>No--go to Step **D.** next |
| 2 Amp Circuit Breaker (CB) failed | **D.** Check power from CB | Measure 120 volt AC from both sides of 2 amp CB to Terminal Block 4 (Blue)<br>Yes--go to Step **E.** next<br>No--With power off, check continuity of CB & wires to CB. Replace CB. |
| Coolant Pump Switch (CPS) not working | **E.** Check for power from CPS | CPS Term 5 to Terminal Block 4 (Blue) for 120 Volts AC<br>Yes--Go to Step **F.** next<br>No--replace CPS |
| Coolant Pump Not Working | **F.** Check for power from CPS | Measure 120 volt AC from TB1-4 to TB1-5.<br>Yes--Replace Coolant Pump. |

# ELECTRICAL TROUBLESHOOTING (Continued)

**PROBLEM--Traverse Drive not working.**

**Assuming (SSS) System Start Switch is on with 120 volts AC to control panel and all other functions are working.**

**Verify all wires shown on the wiring diagram are correct and pull on wire terminals with approximately 3 lbs force to verify there are no loose terminal connections and/or no loose crimps between the wire and the terminal. If problem persists, test as listed below.**

| Possible Cause | Checkout Procedure | |
|---|---|---|
| Traverse Motor Switch (TMS) is not on | **A.** Turn on (TMS) | Traverse works<br>Yes--end troubleshooting<br>No--got to Step **B.** next |
| Traverse Speed Pot (TSP) set to zero | **B.** Set (TSP) to 35 on the control panel | Traverse works<br>Yes--end troubleshooting<br>No--go to Step **C.** next |
| Fuse on Traverse Drive Control (TDC) has failed | **C.** Check fuse and replace if failed. See Page 23. Too heavy a grind causes grinding head traverse motor to overload and blow the fuse,<br>NOTE: Fuse can not be checked visually. Use Ohm test to check fuse. Fuse must be replaced with a slo-blo fuse. | Traverse works<br>Yes--end troubleshooting<br>No--go to Step **D.** next |
| Traverse Drive Control (TDC) is bad | **D.** Check for 120 Volts (AC) incoming to (TDC) | On (TDC) Terminal L1 to L2 for 120 Volts AC<br>Yes--Go to Step **F.**<br>No--Go to Step **E.** next |
| Bad Traverse Motor Switch (TMS) | **E.** Check for 120 Volts AC at (TMS). (Make certain (TMS) is on) | Measure 120 volts AC from TMS Terminal 5 to Term Block 4(Blue)<br>Yes--Verify wiring to TDC.<br>No--Flip Switch and check again-<br>Works--Switch is upside down.<br>Does not work-- Check wiring/Verify Continuity/ Replace Switch |

# ELECTRICAL TROUBLESHOOTING (Continued)

| Possible Cause | Checkout Procedure | |
|---|---|---|
| No DC Voltage from (TDC) Traverse Drive Control | **F.** Check for 90 Volts DC across (TDC) terminals #A1 to #A2 this voltage drives the DC traverse motor. NOTE: Traverse must be on and have (TSP) turned full CW to maximum voltage of 90 VDC | Check (TDC) terminals #A1 to #A2 for 90 Volts DC<br>Yes--go to Step **G.** next<br>No--go to Step **H.** next |
| Traverse Motor is bad | **G.** Check traverse motor continuity | Remove motor wires from Terminal Strip 1 terminals #7 & #8 check for 0 ohms across the black and white wires.<br>Yes--end troubleshooting<br>No--go to Step **K.** next |
| (TSP) is not working | **H.** Check (TSP) (10K) on control panel | (TDC) Pin #8 to #7<br>Pot Full CCW Pot Full CW<br>0VDC 9.75 VDC<br>Pin #8 to 9<br>Pot Full CCW Pot Full CW<br>9.75 VDC 0 VDC<br>Yes--replace the (TDC)<br>No--go to Step **J.** next |
| (TSP) (10K) is bad | **J.** Check (TSP) for 10,000 ohms. Remove three wires from (TDC)<br>red from term #8<br>white from term #7<br>black from term #9 | Check for 10,000 ohms red to white wires<br>Full CCW--0 ohms<br>Full CW--10,000 ohms<br>Red to black wires<br>Full CCW--10,000 ohms<br>Full CW--0 ohms<br>Yes--replace the (TDC)<br>No--replace (TSP) |
| Worn motor brushes | **K.** Inspect Motor Brushes<br> **DISCONNECT POWER FROM MACHINE** | Remove the brushes one at a time and maintain orientation for reinsertion. See if brush is worn short, 3/8" (10 mm) minimum length.<br>Yes--replace motor brushes<br>No--replace Traverse Motor<br>**NOTE: TRAVERSE MOTOR BRUSHES HAVE SHOWN A VERY LONG LIFE. THEREFORE IT IS IMPROBABLE THAT MOTOR BRUSHES ARE BAD.** |

# ELECTRICAL TROUBLESHOOTING (Continued)

**PROBLEM--Traverse does not stop to reverse directions when flag goes under the proximity switch on the left side or right side of machine.**

| Possible Cause | Checkout Procedure | | |
|---|---|---|---|
| Gap between flag and prox is incorrect. | A. Gap between flag and prox should be 3/16 to 1/4" (4-6 mm). Prox LED does not light when flag is under prox. | If incorrect, adjust per adjustment section of manual.<br>Yes--end troubleshooting<br>No--go to Step B. next | |
| Proximity Switch is bad. | B. Proximity switch is not working properly or wire connections are loose. | First check to see if proximity light comes on. When the light is on, it means that there is electricity coming to proximity switch. Actuate prox switches with steel tool to take measurements. | The light coming on shows the proximity is getting electrical contact. |
| | | Left proximity (PROX 1) check Traverse drive Control (TDC) between terminals #13 (black wire) and #15 (brown wire). | Proximity light on- 0 Volts DC<br>Proximity light off- 12 Volts DC |
| | | Right proximity (PROX) check #14 (black wire) and #15 (brown wire). | Proximity light on- 0 Volts DC<br>Proximity light off- 12 Volts DC |
| | | | Replace proximity switch if the voltages do not read as above. |

# ELECTRICAL TROUBLESHOOTING (Continued)

**PROBLEM--Traverse speed control goes at one speed only.**

| Possible Cause | Checkout Procedure | |
|---|---|---|
| Defective speed control potentiometer | **A.** Check potentiometer on control panel. | Traverse Drive Control Pin #8 to 7<br>Pot full CCW Pot Full CW<br>0 VDC 9.75 VDC<br>Pin #8 to 9<br>Pot full CCW Pot Full CW<br>9.75 VDC 0 VDC<br>Yes--Pot is OK<br>No--Go to Step **B.** next |
| | **B.** Check potentiometer for 10,000 ohms.<br>Remove three wires from Traverse Drive Control<br>red from term #8<br>white from term #7<br>black from term #9 | Check for 10,000 ohms<br>Red to White wires<br>Full CCW - 0 ohms<br>Full CW - 10,000 ohms<br>Red to Black wires<br>Full CCW - 10,000 ohms<br>Full CW - 0 ohms<br>Yes--Go to Step **C.** next<br>No--replace potentiometer.<br>Wiper inside of potentiometer controls speed. Wiper may be bad and not making contact. |
| Wiring hookup to potentiometer is improper.<br>(If components have been replaced.) | **C.** Check potentiometer wiring for proper hookup. See that speed pot is wired per electrical diagram | Wrong wire hookup effects traverse control. Reversing red and orange wires to potentiometer to the D C motor will run at zero speed but maximum will be too slow. Reversing red and white wires does not affect speed control.<br>Check for Proper function.<br>Yes--end troubleshooting<br>No--Go to Step **D.** next |
| Main circuit board dial pot settings not correct. (If board has not been replaced.) | **D.** Check all pot settings on circuit board as shown in wiring diagram. (See adjustment section Traverse Motor Control Board Settings.) | Minimum and maximum pot settings effect traverse speed. |

# ELECTRICAL TROUBLESHOOTING (Continued)

**PROBLEM--If the carriage traverses to one end of stroke or the other and it stops and does not reverse direction.**

| Possible Cause | Remedy | Reason |
|---|---|---|
| Proximity switch is not working properly or wire connections are loose | First check to see if proximity light comes on. When the light is on, it means that there is electricity coming to proximity switch. Actuate prox switches with steel tool to take measurements. | The light coming on shows the proximity is getting electrical contact. |
| | Left proximity (PROX1) check Traverse drive Control (TDC) between terminals #14 (black wire) and #15 (brown wire). | Proximity light on- 0 Volts DC<br>Proximity light off- 12 Volts DC |
| | Right proximity (PROX) check (TDC) between terminals #13 (black wire) and #15 (brown wire). | Proximity light on- 0 Volts DC<br>Proximity light off- 12 Volts DC |
| | | Replace proximity switch if the voltages do not read as above. |

**PROBLEM--Insufficient hesitation at carriage stops prior to reversing traverse.**

| | | |
|---|---|---|
| The dwell time on the traverse drive control not set properly. | Reset dwell time as required. One increment increases Dwell time by 1/2 second. | |

**PROBLEM--Traverse changes directions erratically while running in traverse cycle.**

| | | |
|---|---|---|
| Loose wire to proximity switch. | Check wire connections from the proximity switches and tighten down screws. | A loose wire connection will give intermittent electrical contact. |

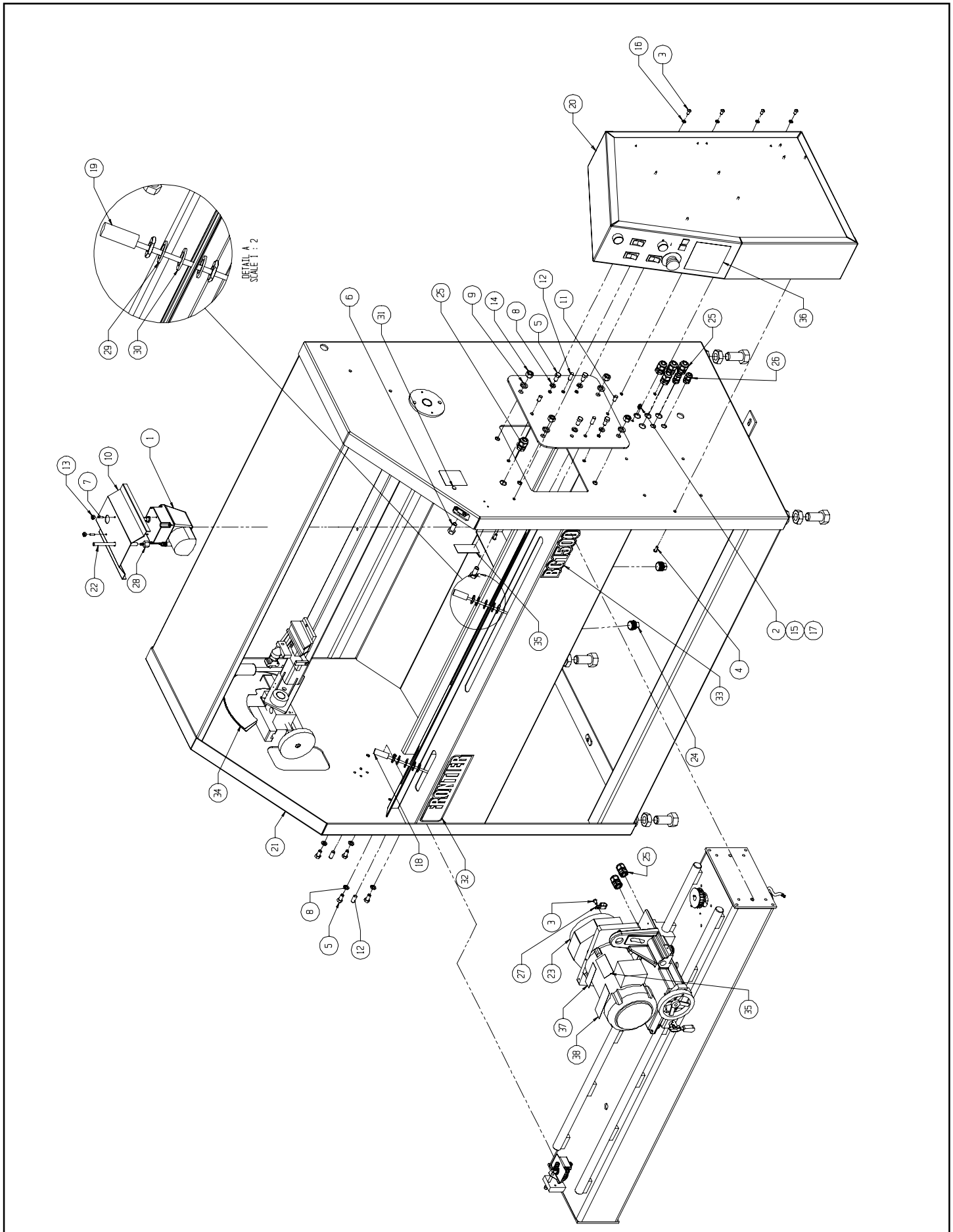
# MECHANICAL TROUBLESHOOTING

| --PROBLEM-- | --POSSIBLE CAUSE-- | --REMEDY-- | --REASON-- |
|---|---|---|---|
| **Top face of bedknife is ground in a convex shape (high in the center) or concave shape (low in the center)** | **A--**Grinding wheel is loading up with grinding grit. | Dress the wheel prescribed in the Operators Manual. | A loaded wheel creates undue pressure on the surface being ground. Both ends of bedknife move because of this pressure, allowing bedknife to rock on the middle support. |
| | **B--**Too heavy a grind on the final grinding pass. | Follow the procedures in the Operators Manual. On the final pass, infeed only about .001" [.025 mm]. Let the wheel spark out for 10-20 passes at about slow speed, with no additional infeed. | For precise grinding, spark-ing-out process is critical. It eliminates excessive final-grinding pressure on centers and middle support, which helps maintain grinding straightness. |
| | **C--**Small Grinding Head Slide Vee Roller loose | Adjust Vee Rollers per procedure on Page 19. | Looseness in roller causes erratic grind. |
| **The top face of the bedknife is ground unevenly across the width.** | **A--**Grinding wheel rim is not completely over the top face being ground. | The wheel rim must extend over the bedknife top face by 1/2" [13 mm] whenever possible. See Operators Manual. If not possible, dress the wheel more often. | When the rim doesn't extend over the top face, it wears unevenly and causes grooves across the bedknife. |
| | **B--**Small grinding Head Slide Vee Roller loose. | Adjust Vee rollers per procedure on Page 19. | Looseness in rollers causes erratic grind. |
| | **C--**Backlash in infeed handwheel. | Eliminate backlash in infeed handwheel, see Page 16. | Backlash allows grinding wheel to move under load. |
| **Too coarse a grind on bedknife.** | Grinding head is traversing too fast. | Slow down the traversing speed. | Traversing speed controls the grinding surface texture. A slower traverse produces grind marks closer together. |
| **The top face of the bedknife shows burn marks from being too hot.** | **A--**Coolant not directed onto the bedknife and grinding wheel. | Direct coolant into the grinding wheel, at the point of the grind. See Operators Manual. | When the front face of the bedknife gets too hot, the steel loses its temper (softens). |
| | **B--**Too heavy stock removal during grinding. | Take off about .002 to .003" [.05 to .075mm] per pass during rough grind. See Operators Manual. | Too much stock removal in one pass creates too much heat and softens the steel. |
| | **C--**Grinding wheel is glazing. | Dress the wheel before the finish-grinding pass on each bedknife. See Operators Manual. | Wheel will glaze if not dressed often enough. Also, as a general rule, use a higher traverse speed for the heavy grind. |

# MECHANICAL TROUBLESHOOTING (Continued)

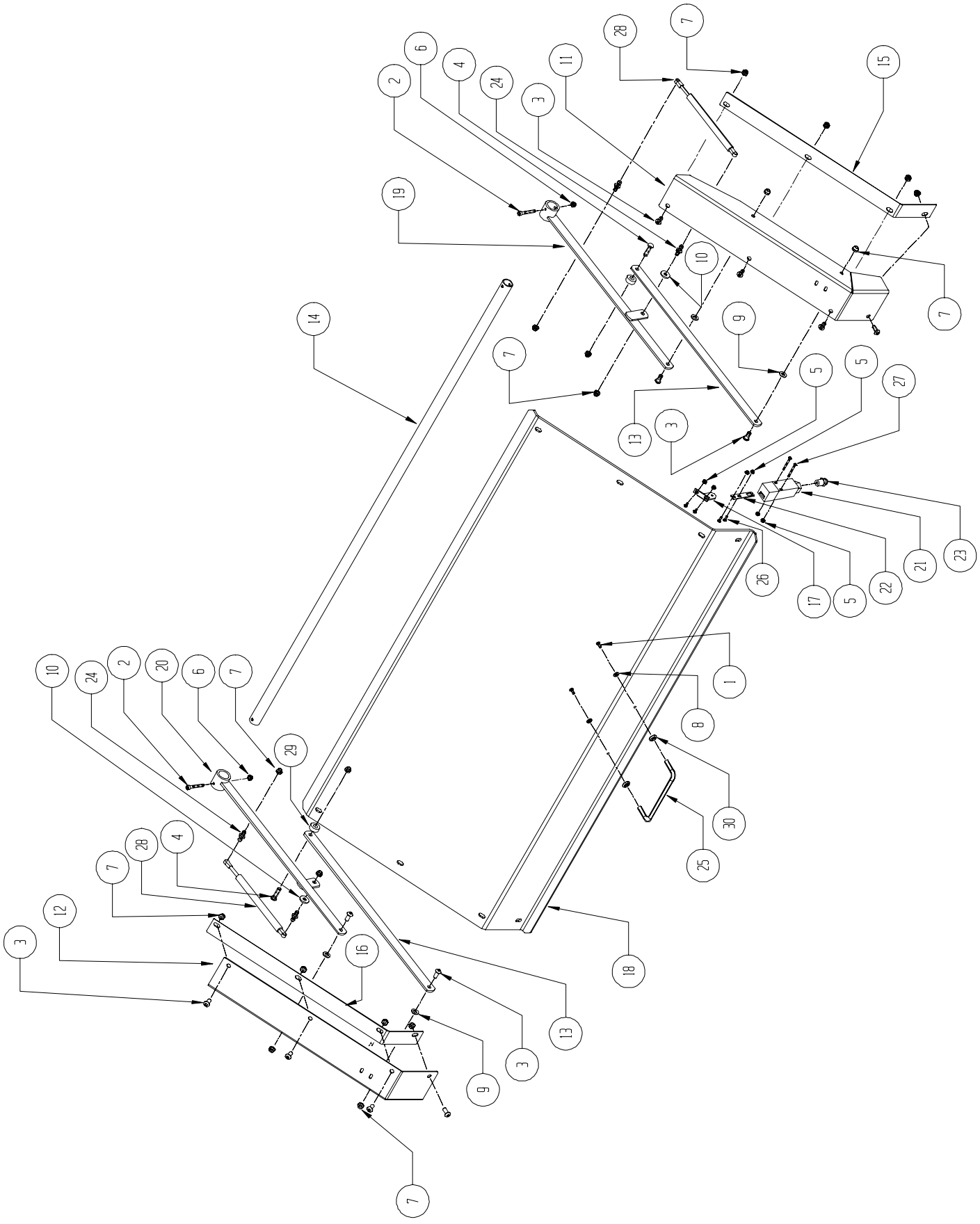
| --PROBLEM-- | --POSSIBLE CAUSE-- | --REMEDY-- | --REASON-- |
|---|---|---|---|
| **Grinding wheel is glazing too quickly.** | **A--**Wheel needs dressing. | Dress the wheel before the finish-grinding pass on each bedknife. See Operators Manual. | Wheel will glaze if not dressed often enough. If grinding wheel is not extended 1/2" [12 mm] over bedknife, it will glaze more quickly because there is less dressing. |
| | **B--**Too light a cut when rough grinding. | Take off about .002 to .003" [.05 to .075 mm] per pass during rough grind. See Operators Manual. | Too light a grinding cut doesn't permit enough dressing action on the wheel, so it glazes. |
| | **C--**Grinding head is traversing too slow. | Speed up traverse. | Too slow a traverse speed can cause excessive heat buildup in the grinding wheel, which glazes the wheel. |
| **Grinding motor vibrates excessively.** | Grinding wheel is out of balance. | Visually check the outside diameter runout while slowly rotating the wheel by hand. Also check the motor without a wheel installed. Replace the wheel if out-of -round. | A grinding wheel which isn't properly trued up on outside or inside diameters can vibrate excessively and transfer that vibration to the motor. |
| **Carriage traversing varies speed while grinding** | **A--**Linear bearings in the carriage do not rotate freely | Adjust bearing for proper tension. See adjustments section of this manual. | When bearing preload is too tight, it causes excessive loading to drive carriage. |
| | | Flush linear bearing per lubrication proceedure and replace wipers. Or replace the three linear bearings and wipers. | Grinding grit is getting into the linear bearings and causing excessive driving torque of the carriage. |
| | **B--**Belt it slipping. | Adjust belt clamping force. See adjustment section of manual. | If the traverse belt clamp is damaged or not adjusted properly the belt will slip. |
| | **C--**Traverse belt tension is too loose. | Adjust traverse belt tension. See adjustments section of this manual. | If the belt is too loose it will tend to vibrate or the belt tensioning springs may tend to jump when loaded. |

# 5NTBG1509504 MAIN BASE ASSEMBLY EXPLODED VIEW



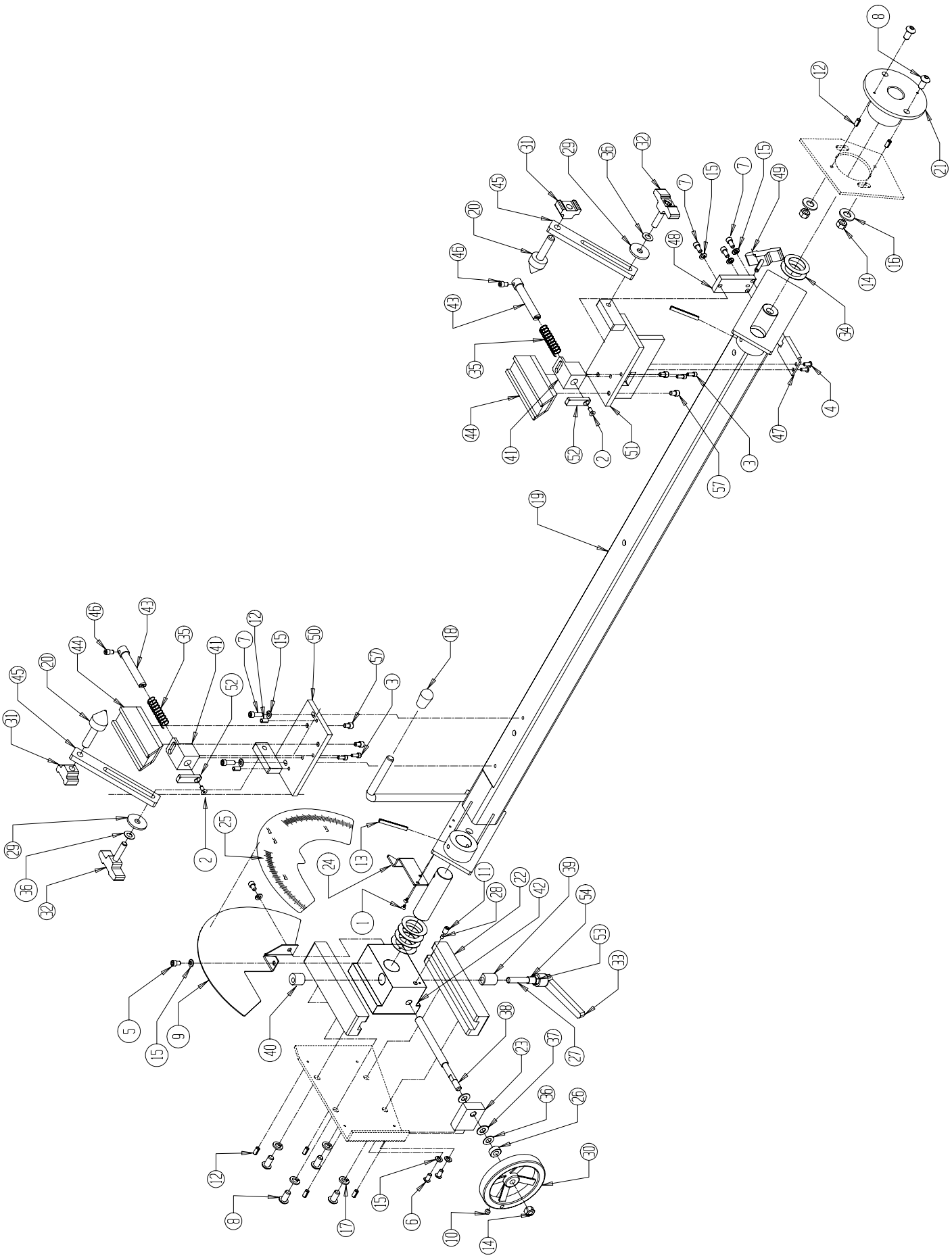
| DIAGRAM NUMBER | PART NUMBER | DESCRIPTION |
|---|---|---|
| 1 | 5NT6709209 | Coolant Pump Assembly |
| 2 | 5NTB190809 | 10 -24 x 1/2 RHMS |
| 3 | 5NTB250816 | 1/4-20 x 1/2 Button Head Socket Cap Screw |
| 4 | 5NTB251016 | 1/4-20 x 5/8 Button Head Socket Cap Screw |
| 5 | 5NTB371201 | 3/8-16x 3/4 Hex Head Cap Screw |
| 6 | 5NTB501601 | 1/2-13 x 1 Hex Head Cap Screw |
| 7 | 5NTC161020 | 8 - 32 x 5/8 SSS CPPT |
| 8 | 5NTK371501 | 3/8 Split Lockwasher |
| 9 | 5NTK501501 | 1/2 SAE Split Lockwasher |
| 10 | 5NT6609046 | Coolant Pump Cover |
| 11 | 5NTH371202 | .375 Dia. x .75 Long Roll Pin |
| 12 | 5NTH371602 | .375 Dia. x 1.00 Long Roll Pin |
| 13 | 5NTJ167000 | 8 - 32 Nylon Insert Jam Locknut |
| 14 | 5NTJ501000 | 1/2 - 13 Hex Nut |
| 15 | 5NTR000483 | #10 Int. Teeth Lock Washer |
| 16 | 5NTR000536 | 1/4 Int. Teeth Lock Washer |
| 17 | 5NTR000553 | 10 - 24 Kep Nut |
| 18 | 5NT27148 | Traverse LH Prox. Assembly |
| 19 | 5NT27149 | Traverse RH Prox. Assembly |
| 20 | 5NTBG1509502 | Control Panel Weldment |
| 21 | 5NTBG1509505 | Cabinet Weldment |
| 22 | 5NT6609044 | Coolant Tube |
| 23 | 5NT3700696 | 6 x 1.5 Steel Cup Borazon 120G Grinding Wheel |
| 24 | 5NT3706022 | 3/4 NPTF (Steel) Pipe Plug |
| 25 | 5NT3707009 | Strain Relief |
| 26 | 5NT3707029 | Strain Relief |
| 27 | 5NT3708121 | .38 Dia. Double Cord Clamp |
| 28 | 5NT3708339 | Barbed Insert Connector |
| 29 | 5NT3708419 | .78 ID Wave Spring |
| 30 | 5NT3708421 | .75 x 1.0 x .075 T Flat Washer |
| 31 | 5NT3708832 | HIPOT Test Decal |
| 32 | 5NTRG5509004 | Frontier Decal |
| 33 | 5NT127300 | BG1500 Decal - Part of Decal Sheet |
| 34 | 5NT127300 | Protractor Decal - Part of Decal Sheet |
| 35 | | Electrical Caution Decal (See page 7 of the Operators Manual) |
| 36 | | Machine Caution Decal (See page 7 of the Operators Manual) |
| 37 | | Sharp Caution Decal (See page 7 of the Operators Manual) |
| 38 | | Wheel RPM Caution Decal (See page 7 of the Operators Manual) |

# 5NT27519 GUARD DOOR ASSEMBLY EXPLODED VIEW



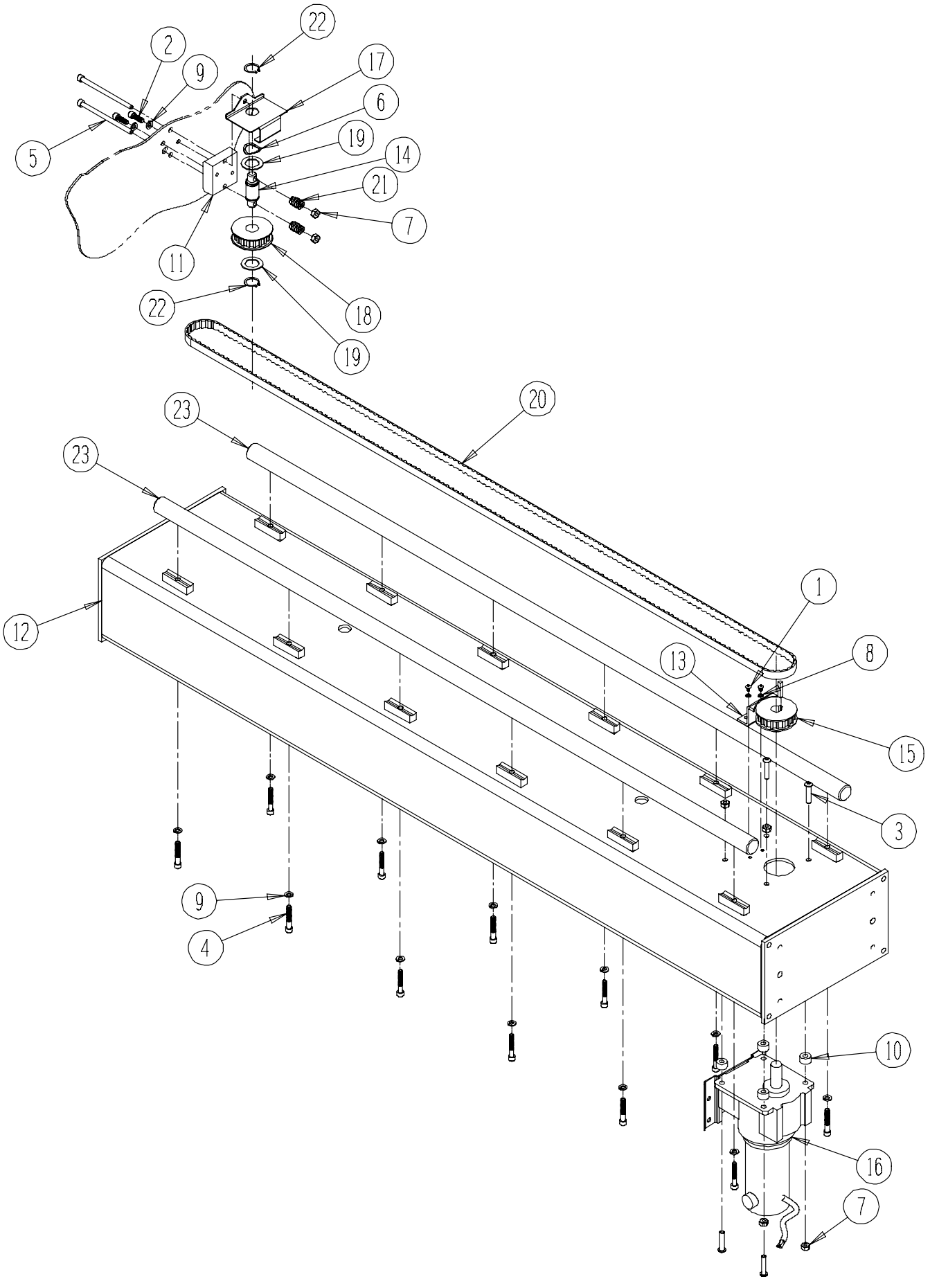
| DIAGRAM NUMBER | PART NUMBER | DESCRIPTION |
|---|---|---|
| 1 | 5NTB190834 | 10 - 32 x 1/2 Button Head Socket Cap Screw |
| 2 | 5NTB252811 | 1/4 - 20 x 1-3/4 Socket Head Cap Screw |
| 3 | 5NTB311213 | 5/16 - 18 x 3/4 Button Head Socket Cap Screw |
| 4 | 5NTB312013 | 5/16 - 18 x 1.25 Button Head Socket Cap Screw |
| 5 | 5NTJ167000 | 8 - 32 Jam Locknut |
| 6 | 5NTJ257100 | 1/4 - 20 Locknut |
| 7 | 5NTJ317000 | 5/16 - 18 Jam Locknut |
| 8 | 5NTK190001 | #10 Flat Washer |
| 9 | 5NTK310001 | 5/16 Flat Washer |
| 10 | 5NTR000453 | Flat Washer .31 x .88 x .104 Thick |
| 11 | 5NT27131 | Door Frame Bracket - Right Hand |
| 12 | 5NT27132 | Door Frame Bracket - Left Hand |
| 13 | 5NT27133 | Lower Arm |
| 14 | 5NT27138 | Torque Tube |
| 15 | 5NT27139 | Inside Door Reinforce - Right Hand |
| 16 | 5NT27140 | Inside Door Reinforce - Left Hand |
| 17 | 5NT27141 | Safety Switch Key Bracket |
| 18 | 5NT27142 | Polycarbonate Door |
| 19 | 5NT27517 | Door Arm Weldment - Right Hand |
| 20 | 5NT27518 | Door Arm Weldment - Left Hand |
| 21 | 5NT3707728 | Safety Switch |
| 22 | 5NT3707372 | Straight Key - Safety Switch |
| 23 | 5NT3707563 | Strain Relief |
| 24 | 5NT3708572 | Ball Stud - 10MM |
| 25 | 5NT3708577 | D - Handle |
| 26 | 5NT3708820 | 8 - 32 x .50 Button Head Safety Screw |
| 27 | 5NT3708865 | 8 - 32 x 1.50 Button Head Safety Screw |
| 28 | 5NT3708866 | Gas Spring |
| 29 | 5NT3889045 | Spacer .406 x .875 x .38 Long |
| 30 | 5NT6709071 | Handle Ferrule |
| | 5NT3708378 | Foam Strip - .25 Thick (Not Shown) |

# 5NT27541 BEDKNIFE SUPPORT ASSEMBLY EXPLODED VIEW



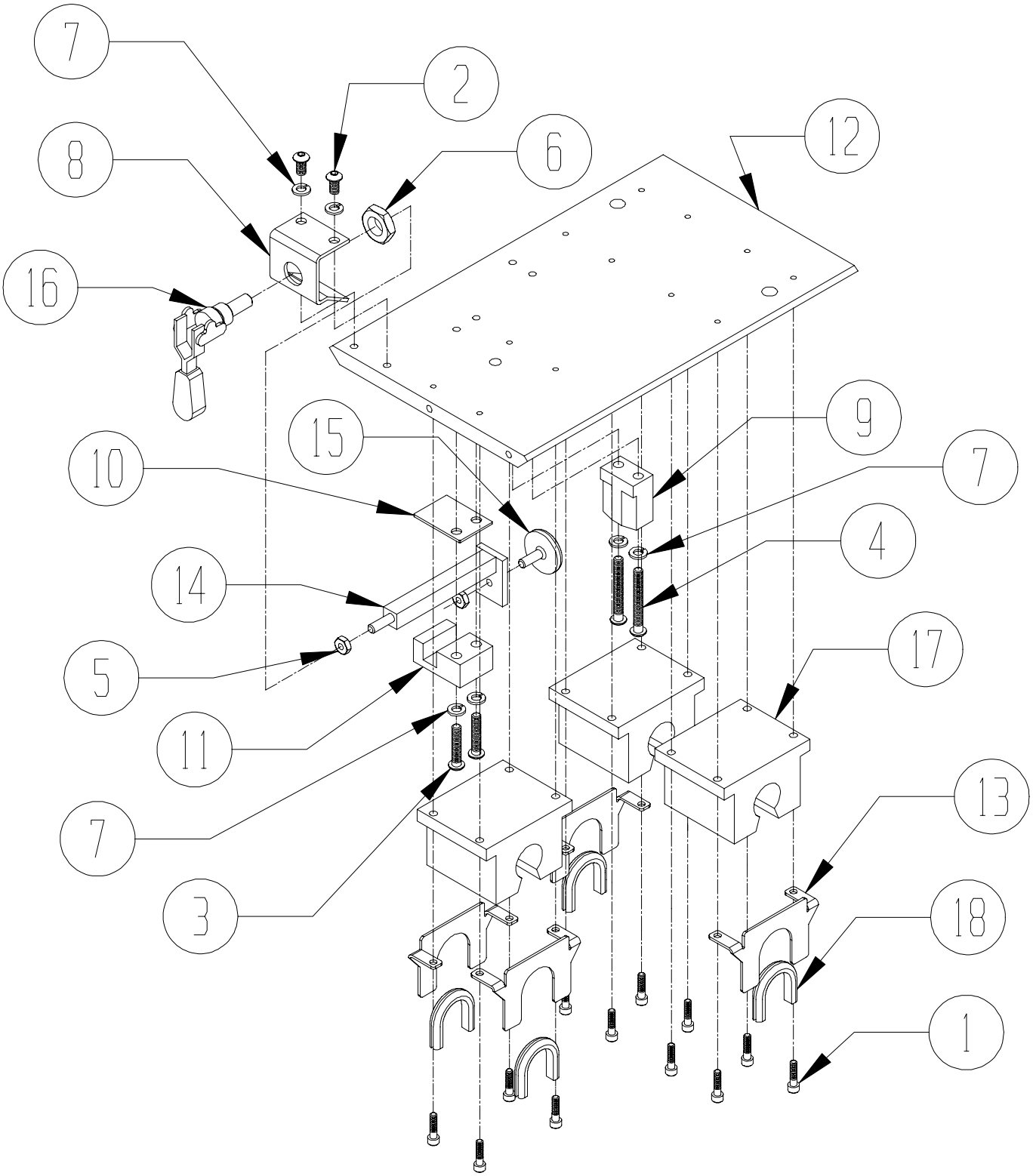
| DIAGRAM NUMBER | PART NUMBER | DESCRIPTION |
|---|---|---|
| 1 | 5NTB160605 | 8-32x3/8 Flat Head Cap Screw |
| 2 | 5NTB190805 | 10-24x1/2 Flat Head Socket Cap Screw |
| 3 | 5NTB190811 | 10-24x1/2 Socket Head Cap Screw |
| 4 | 5NTB190813 | 10-24x1/2 Button Head Socket Cap Screw |
| 5 | 5NTB250611 | 1/4-20x3/8 Socket Head Cap Screw |
| 6 | 5NTB250816 | 1/4-20x1/2 Socket Head Cap Screw |
| 7 | 5NTB251211 | 1/4-20x3/4 Socket Head Cap Screw |
| 8 | 5NTB371216 | 3/8-16x3/4 Button Head Socket Cap Screw |
| 9 | 5NT27117 | Bracket - Rotation Decal |
| 10 | 5NTC310420 | 5/16-18x1/4 Socket Set Screw - Cup Pt. |
| 11 | 5NTC310820 | 5/16-18x1/2 Socket Set Screw - Cup Pt. |
| 12 | 5NTH250802 | 1/4 dia x 1/2 Long Roll Pin |
| 13 | 5NTH253202 | 1/4 dia x 2 Long Roll Pin |
| 14 | 5NTJ377000 | 3/8-16 Jam Locknut |
| 15 | 5NTK251501 | 1/4 Lockwasher |
| 16 | 5NTK370001 | 3/8 Flat Washer |
| 17 | 5NTK371501 | 3/8 Lockwasher |
| 18 | 5NT3709327 | Rubber Tip |
| 19 | 5NT27508 | Tooling Bar |
| 20 | 5NT28181 | Center Assy |
| 21 | 5NT28196 | RH Tooling Pivot Block |
| 22 | 5NT28200 | LH Tooling Slide Bar |
| 23 | 5NT28201 | Tooling Adj. Block |
| 24 | 5NT27118 | Bracket - Tooling pointer |
| 25 | 5NTBG1509003 | Decal - Protractor |
| 26 | 5NT28212 | Spacer - 39ID x .750D x .311Long |
| 27 | 5NT3999030 | 3/8-16 x3.62 LG Thread Stud |
| 28 | 5NT3579109 | Nylon Plug 3/16 Dia |
| 29 | 5NT3589106 | Washer - Flat .39 x 1.38 x .125 |
| 30 | 5NT3708148 | Handwheel 4.5Dia .38 Bore |
| 31 | 5NT80318 | Knob-T 1.5 1/2-13 |
| 32 | 5NT6009555 | Knob Assembly-T 2.5 3/8-16x1.5 Long |
| 33 | 5NT3709437 | Handle - Adj 3/8-16 x 1.97 |
| 34 | 5NT3708652 | Washer - Conical 1.2 x 1.83 x .024 |
| 35 | 5NT3708836 | Spring - Compressed .600D x .531ID x 2.5Long |
| 36 | 5NT3709062 | Washer - Conical .382 x .75 x .035 |
| 37 | 5NT3709304 | Washer - Thrust .375 x .812 x .032 |
| 38 | 5NT6009027 | Shaft - Adjusting Acme LH |
| 39 | 5NT6309050 | Lock Bar - LH Adjuster |
| 40 | 5NT6309051 | Lock Bar - Threaded LH Adjuster |
| 41 | 5NT6609087 | Base - Gage Short C'bore |
| 42 | 5NT6609016 | Block - Slide RH |
| 43 | 5NT6609018 | Shaft - Gage |
| 44 | 5NT6609019 | Magnet |
| 45 | 5NT6609021 | Arm - Center Adjust |
| 46 | 5NT6609023 | Screw - Gage Lock |
| 47 | 5NT6609093 | Lock Support Bar |
| 48 | 5NT6609092 | Slide Lock Bar RH |
| 49 | 5NT6609501 | Knob Assy - T 2.5 1/4-20 x 1.31Long |
| 50 | 5NT6609535 | Mount Weldment LH |
| 51 | 5NT6609536 | Slide Weldment RH |
| 52 | 5NT6709021 | Tip - Gage |
| 53 | 5NTJ372000 | 3/8-16 Hex Jam Nut Thin |
| 54 | 5NT27115 | Spacer .386 IDx .50 ODx .75 Long |

# 5NT27554 CHANNEL & TRAVEL ASSEMBLY EXPLODED VIEW



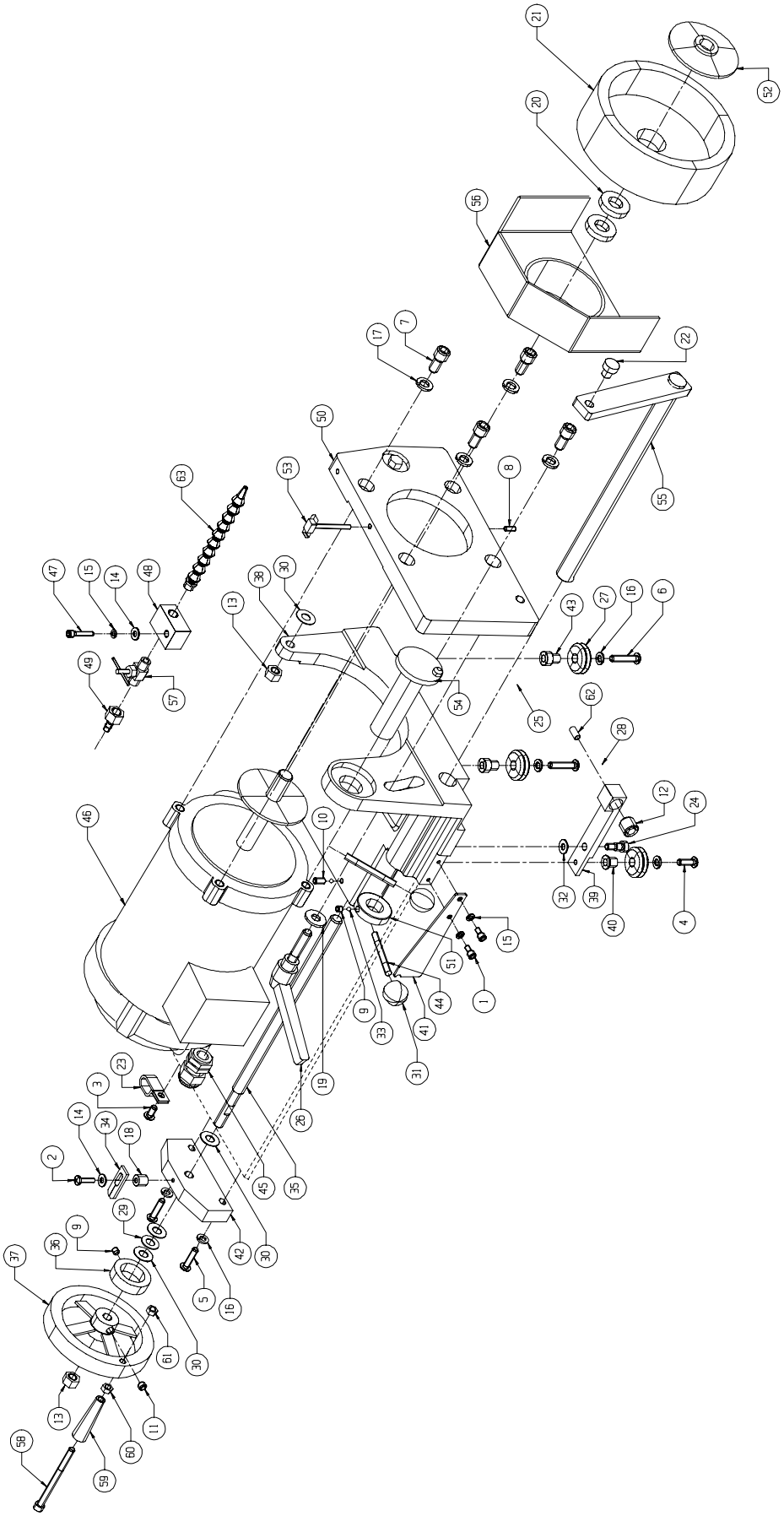
| DIAGRAM NUMBER | PART NUMBER | DESCRIPTION |
|---|---|---|
| 1 | 5NTB160607 | 8-32 x 3/8 Button Head Socket Cap Screw |
| 2 | 5NTB251211 | 1/4-20 x 3/4 Socket Head Cap Screw |
| 3 | 5NTB252016 | 1/4-20 x 1-1/4 Button Head Socket Cap Screw |
| 4 | 5NTB252011 | 1/4-20 x 1-1/4 Socket Head Cap Screw |
| 5 | 5NTB256411 | 1/4-20 x 4 Socket Head Cap Screw |
| 6 | 5NT3708419 | Wave Spring .78 ID x 1.00 OD |
| 7 | 5NTJ257000 | 1/4-20 Locknut Thin |
| 8 | 5NTK161501 | #8 Lockwasher Split |
| 9 | 5NTK251501 | 1/4 Lockwasher Split |
| 10 | 5NT3708884 | Spacer .281 ID x .62 OD x .38 Long |
| 11 | 5NT28192 | Support - Travel Pulley |
| 12 | 5NT27156 | Traverse Base Machined |
| 13 | 5NT28197 | Guard - Travel RH |
| 14 | 5NT50309 | Shaft- Travel Pulley |
| 15 | 5NT3706056 | Pulley - Cog Drive |
| 16 | 5NT6059062 | Motor Assembly - Travel W34 |
| 17 | 5NT50363 | Guard - Traverse Pulley |
| 18 | 5NT55553 | Idler Pulley Assembly |
| 19 | 5NT80355 | Washer - Thrust .75ID x 1.25OD |
| 20 | 5NT80375 | Belt -Cog |
| 21 | 5NT3708658 | Spring - Compression |
| 22 | 5NT3709331 | Ring - Retaining Ext |
| 23 | 5NT6509063 | Shaft - Carrier |

## 5NT27543 CARRIAGE ASSEMBLY EXPLODED VIEW

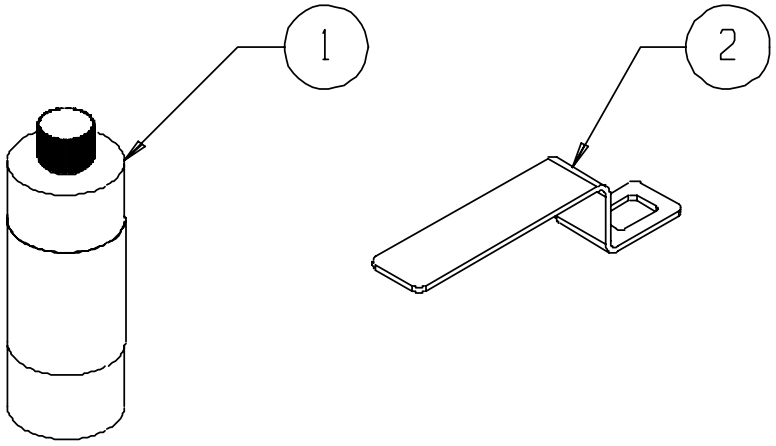


| DIAGRAM NUMBER | PART NUMBER | DESCRIPTION |
|---|---|---|
| 1 | 5NTB191211 | 10-24 x 3/4 Button Head Socket Cap Screw |
| 2 | 5NTB250816 | 1/4-20 x 1/2 Button Head Socket Cap Screw |
| 3 | 5NTB252016 | 1/4 -20 x 1-1/4 Button Head Socket Cap Screw |
| 4 | 5NTB253216 | 1/4 - 20 x 2 Button Head Socket Cap Screw |
| 5 | 5NTJ252000 | 1/4-20 Hex Jam Nut |
| 6 | 5NTJ627200 | 5/8 - 18 Locknut - Jam Nylon |
| 7 | 5NTK251501 | 1/4 Lockwasher Split |
| 8 | 5NT28183 | Bracket - Travel Clamp |
| 9 | 5NT28187 | Block - Travel Clamp |
| 10 | 5NT28188 | Spacer - Travel Clamp |
| 11 | 5NT28189 | Block - Clamp Support |
| 12 | 5NT28191 | Carriage - Grinding Head |
| 13 | 5NT28211 | Bracket - Rail Wiper |
| 14 | 5NT28507 | Travel Clamp Assembly 275 |
| 15 | 5NT50310 | Tip - Belt Clamp |
| 16 | 5NT80335 | Clamp |
| 17 | 5NT3709044 | Bearing - Ball Bushing |
| 18 | 5NT3969064 | Wiper - Foam |

# 5NT6609529 GRINDING HEAD ASSEMBLY EXPLODED VIEW

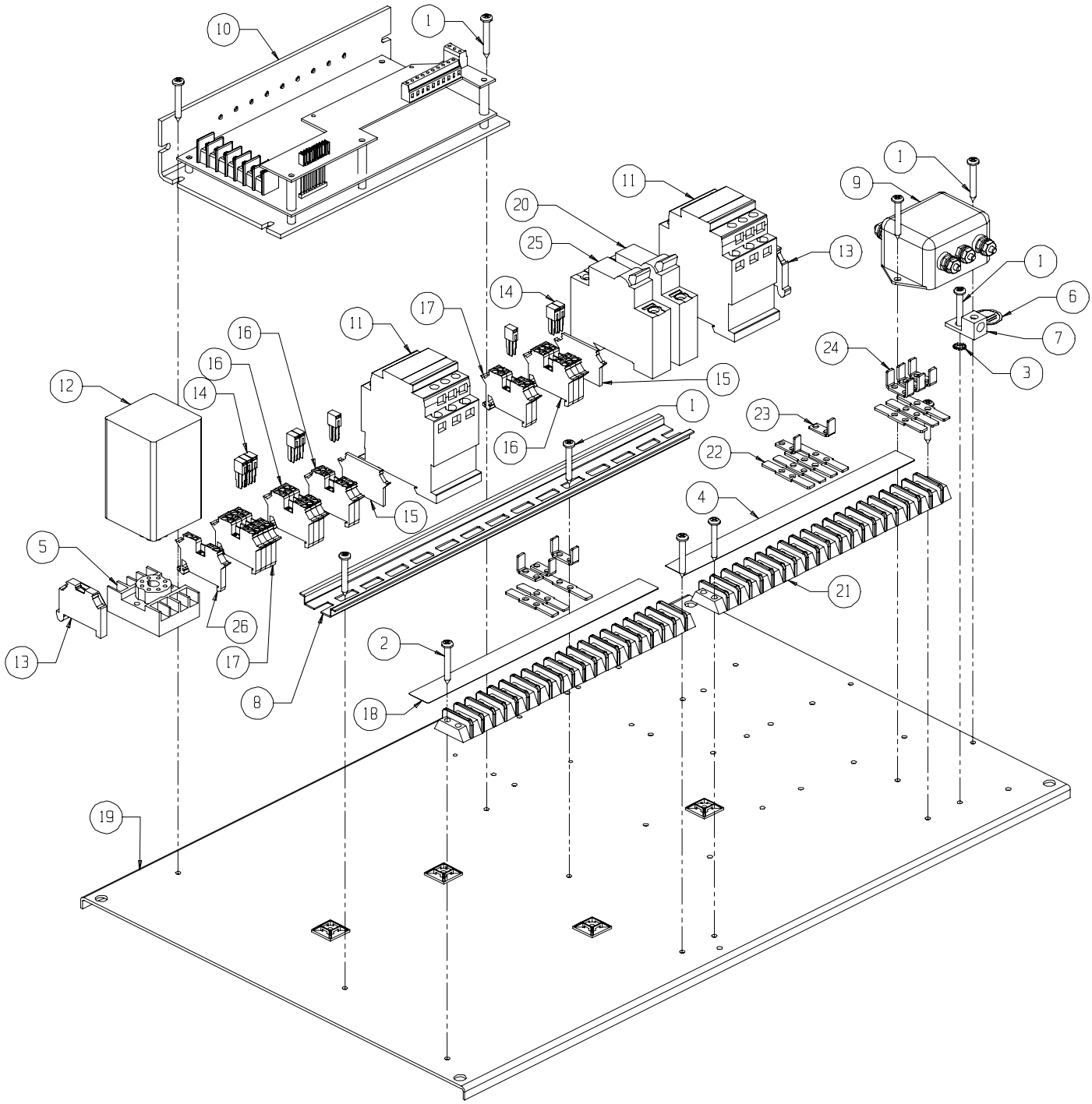


| DIAGRAM NUMBER | PART NUMBER | PART DESCRIPTION |
|---|---|---|
| 1 | 5NTB190611 | 10 - 24 x 3/8 Socket Head Cap Screw |
| 2 | 5NTB191213 | 10 - 24 x 3/4 Button Head Socket Cap Screw |
| 3 | 5NTB250816 | 1/4 -20 x 1/2 Button Head Socket Cap Screw |
| 4 | 5NTB251216 | 1/4 - 20 x 3/4 Button Head Socket Cap Screw |
| 5 | 5NTB251616 | 1/4 - 20 x 1 Button Head Socket Cap Screw |
| 6 | 5NTB252016 | 1/4 - 20 x 1 - 1/4 Button Head Socket Cap Screw |
| 7 | 5NTB371611 | 3/8 - 16 x 1 Socket Head Cap Screw |
| 8 | 5NTC190820 | 10 - 24 x 1/2 Socket Set Screw |
| 9 | 5NTC250420 | 1/4 - 20 x 1/4 Socket Set Screw |
| 10 | 5NTC250820 | 1/4 - 20 x 1/2 Socket Set Screw |
| 11 | 5NTC310420 | 5/16 - 18 x 1/4 Socket Set Screw |
| 12 | 5NTC621060 | 5/8 - 18 x 5/8 Socket Set Screw |
| 13 | 5NTJ377000 | 3/8 - 16 Locknut Jam Nylon |
| 14 | 5NTK190001 | No. 10 Flat Washer |
| 15 | 5NTK191501 | No. 10 Lockwasher Split |
| 16 | 5NTK251501 | 1/4 Lockwasher Split |
| 17 | 5NTK371501 | 3/8 Lockwasher Split |
| 18 | 5NT3589081 | Spacer |
| 19 | 5NTK310101 | 5/16 Flat Cut Washer |
| 20 | 5NT3700409 | Bushing - Reducer (Not req. for Borazon Wheel) |
| 21 | 5NT3700696 | Grinding Wheel Stt. Cup 6 x 1.5 BZN 120G |
| 22 | 5NT3702086 | Diamond Dresser |
| 23 | 5NT3708121 | Clamp - Double Tube |
| 24 | 5NT3708543 | Shoulder Bolt |
| 25 | 5NT3708553 | Spring Compression |
| 26 | 5NT3708561 | Adjustable Handle |
| 27 | 5NT3708657 | Roller Dual Vee |
| 28 | 5NT3708658 | Spring Compression |
| 29 | 5NT3709062 | Washer Conical |
| 30 | 5NT3709304 | Washer - Thrust |
| 31 | 5NT3709526 | Knob |
| 32 | 5NT3708103 | Washer Conical |
| 33 | 5NT3709705 | Nylon Ball |
| 34 | 5NT3809047 | Indicator Clear |
| 35 | 5NT6009218 | Shaft Adjusting |
| 36 | 5NT6059082 | Ring Calibrated |
| 37 | 5NT6009044 | Handwheel |
| 38 | 5NT6609004 | Base Carriage Slide |
| 39 | 5NT6609027 | Arm - Roller Pivot |
| 40 | 5NT6609028 | Bushing-V Roller Short |
| 41 | 5NT6609029 | Bracket - Dresser Lock |
| 42 | 5NT6609030 | Guide - Feed Screw |
| 43 | 5NT6609058 | Bushing-V Roller Long |
| 44 | 5NT6709035 | Stud |
| 45 | 5NT3707009 | Strain Relief |
| 46 | 5NT6609502 | Motor Assy 3/4 HP |
| 47 | 5NTB191611 | 10-24 x 1 Socket Hd Cap Screw |
| 48 | 5NT3679116 | Connector - Shut Off Valve |
| 49 | 5NT3709593 | Connector - Barbed Female NPT |
| 50 | 5NT6609505 | Motor Pivot Assy |
| 51 | 5NT6709038 | Collar - Adjuster |
| 52 | 5NT6709103 | Flange - Outer |
| 53 | 5NT6709501 | Tee Knob Assy |
| 54 | 5NT6709503 | Eccentric Pin Assy |
| 55 | 5NT6709509 | Dresser Arm Weldment |
| 56 | 5NT6709552 | Grinding Wheel Guard Weldment |
| 57 | 5NT3709595 | Valve - Shut Off Needle |
| 58 | 5NTB255011 | 1/4 -20 x3-1/8 Socket Hd Cap Screw |
| 59 | 5NT3709370 | Handle |
| 60 | 5NTJ252000 | Hex Jam Nut 1/4 - 20 |
| 61 | 5NTJ257000 | 1/4 - 20 Nylok Lock Nut |
| 62 | 5NTH250802 | 1/4 x 1/2 Roll Pin |
| 63 | 5NT3709642 | Coolant Line Assy. |


1
2

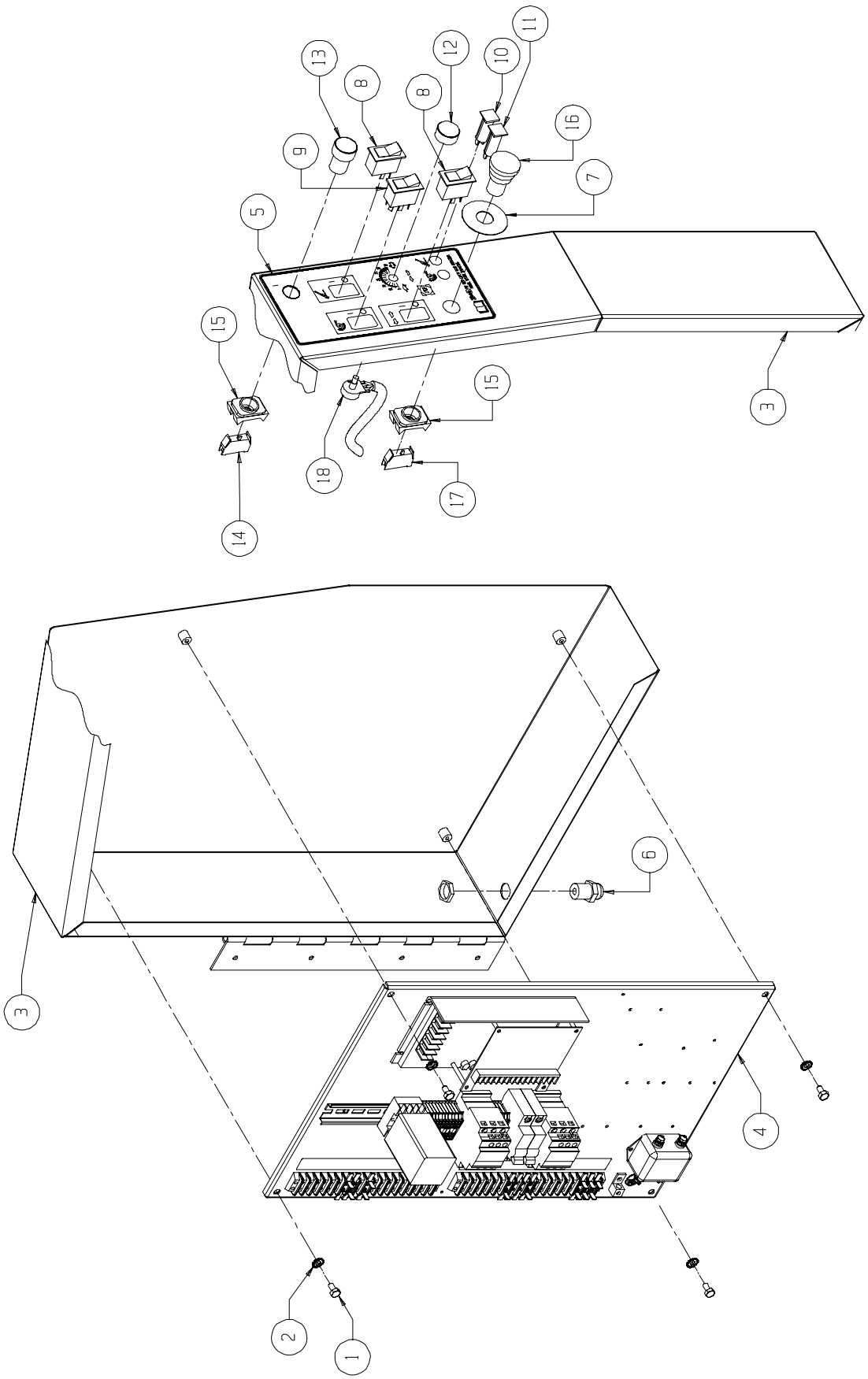
| DIAGRAM NUMBER | PART NUMBER | DESCRIPTION |
|---|---|---|
| 1 | 5NTBG1509002 | Coolant Pint |
| 2 | 5NT6709160 | Wrench-Grinding Wheel |

# 5NT27548 ELECTRICAL PANEL SUB - ASSEMBLY EXPLODED VIEW



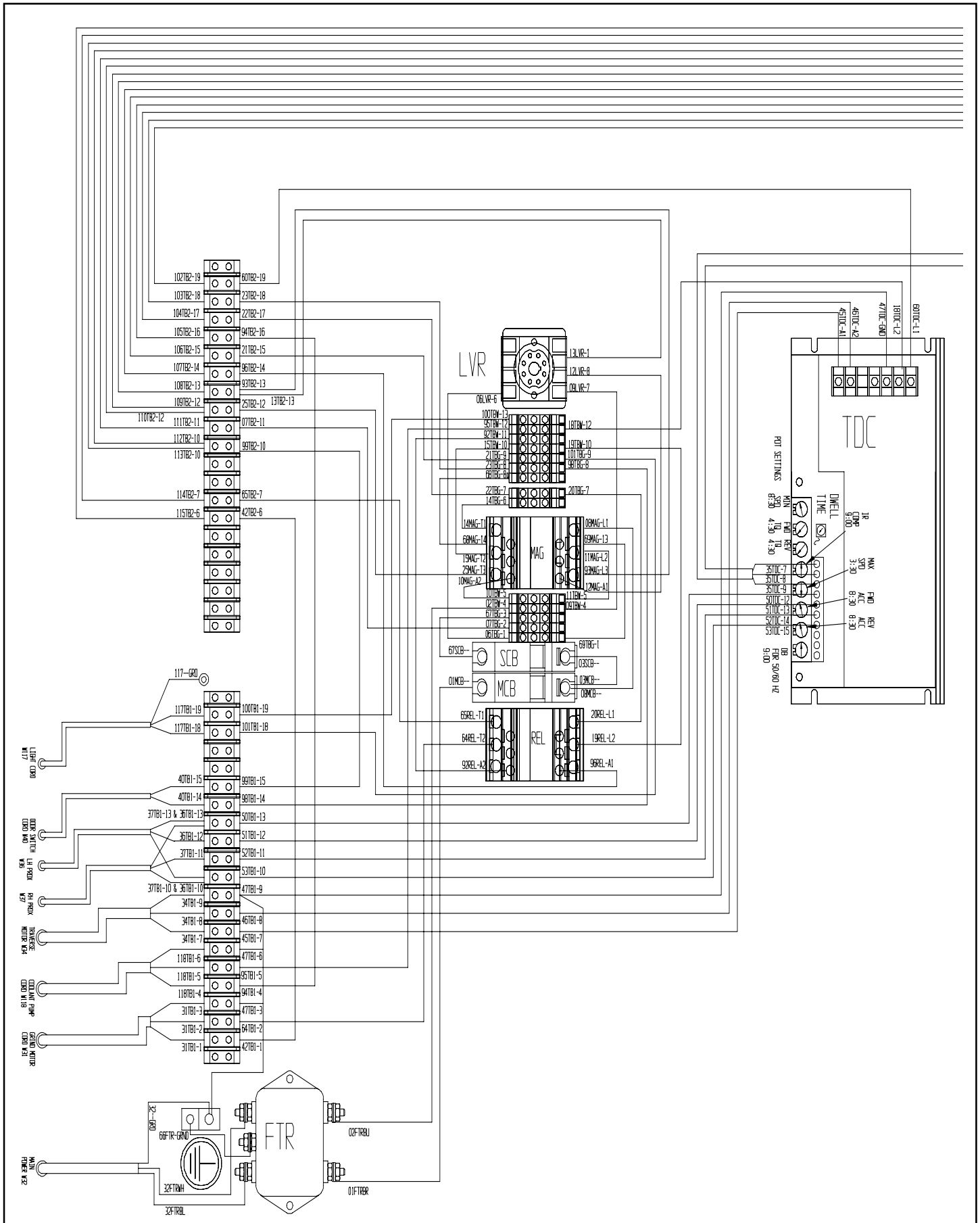
| DIAGRAM NUMBER | PART NUMBER | DESCRIPTION |
|---|---|---|
| 1 | 5NTD160666 | #8 x 3/8 Seft Tapping Screw |
| 2 | 5NTD161266 | #8 X3/4 Self Tapping Screw |
| 3 | 5NTR000480 | #8 External Tooth Lock Washer |
| 4 | 5NT3706078 | 19 Pole Decal (TB1) |
| 5 | 5NT3707073 | 8 Pin Socket |
| 6 | 5NT3707163 | Primary Ground Decal |
| 7 | 5NT3707164 | Primary Ground Lug |
| 8 | 5NT3707378 | Din Rail 14” |
| 9 | 5NT3707764 | Power Line Filter |
| 10 | 5NT3707850 | Traverse Control Board |
| 11 | 5NT3707556 | Magnetic Starter |
| 12 | 5NT3707558 | Voltage Sensor Relay |
| 13 | 5NT3707625 | End Stop - Terminal Block |
| 14 | 5NT3707626 | Jumper - Adjacent Terminal Block |
| 15 | 5NT3707627 | End Plate - Terminal Block |
| 16 | 5NT3707628 | Terminal Block - 2 Conductor Grey |
| 17 | 5NT3707629 | Terminal Block - 2 Conductor Blue |
| 18 | 5NT3706079 | 19 Pole Decal (TB2) |
| 19 | 5NT6009270 | Panel - Electrical |
| 20 | 5NT3707589 | Circuit Breaker - 15 Amp |
| 21 | 5NT3707778 | Terminal Strip - 19 Pole |
| 22 | 5NT3707707 | Straight Double Spade Terminal |
| 23 | 5NT3707709 | Single 90° Spade Terminal |
| 24 | 5NT3707708 | Double 90° Spade Terminal |
| 25 | 5NT3707779 | 6-Amp Circuit Breaker |
| 26 | 5NT3707624 | Ground Terminal Block |
| | 5NT3707224 | Cable Tie Mount (Not Shown) |
| | 5NT3707225 | Cable Tie 6.5” Long x .18 Wide (Not Shown) |
| | 5NT3707255 | Cable Tie 4” Long x .10 Wide (Not Shown) |
| | 5NT3707773 | Wire Harness Assembly - Common (Not Shown) |

# 5NT27549 CONTROL PANEL ASSEMBLY EXPLODED VIEW

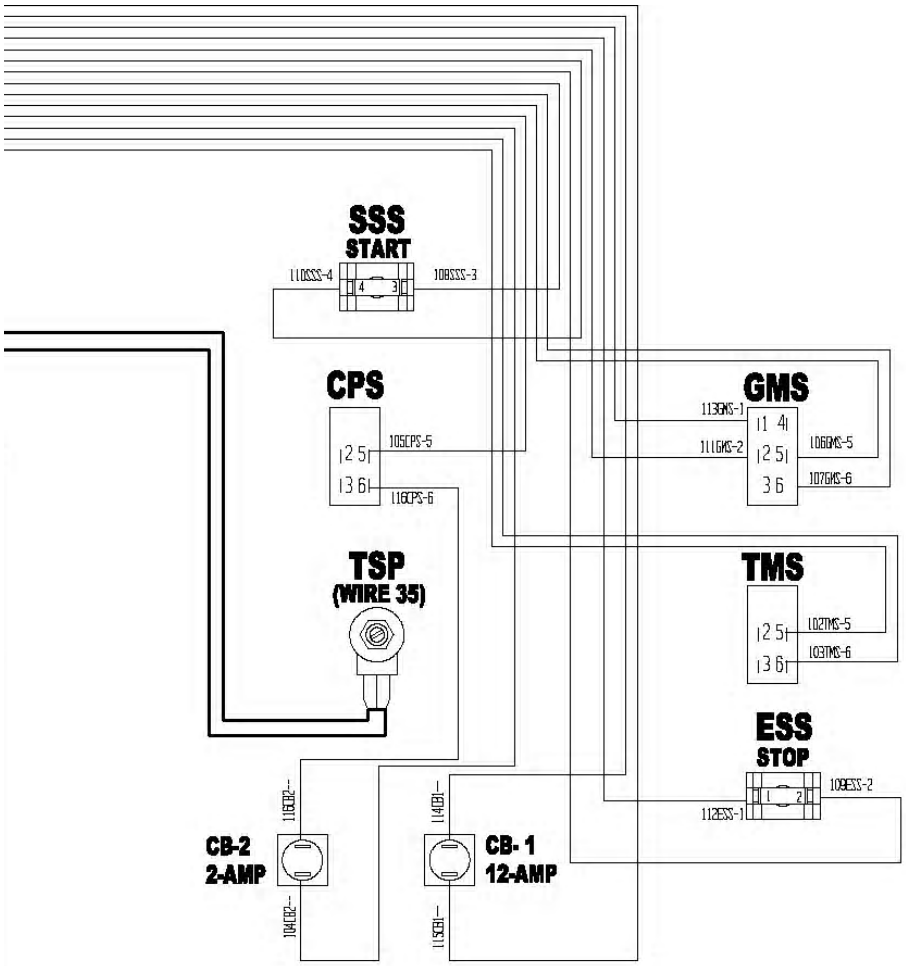


| DIAGRAM NUMBER | PART NUMBER | DESCRIPTION |
|---|---|---|
| 1 | 5NTD250800 | 1/4-20 x 1/2 Thread Cutting Screw Hex Head |
| 2 | 5NTR000536 | 1/4 Internal Tooth Lock Washer |
| 3 | 5NTBG1509502 | Control Panel Weldment |
| 4 | 5NT27548 | Electrical Panel Sub-Assembly (See Pages 66-69) |
| 5 | 5NT80409 | Decal - Control Panel |
| 6 | 5NT3707093 | Strain Relief |
| 7 | 5NT3707342 | Yellow E-Stop Ring |
| 8 | 5NT3707367 | Rocker Switch - On/Off |
| 9 | 5NT3707429 | Rocker Switch - On/Off |
| 10 | 5NT3707442 | 2 Amp Circuit Breaker |
| 11 | 5NT3707543 | 12 Amp Circuit Breaker |
| 12 | 5NT3707446 | Potentiometer Knob |
| 13 | 5NT3707564 | Green Start Pushbutton |
| 14 | 5NT3707565 | Normally Open Contact Block |
| 15 | 5NT3707566 | Pushbutton Mounting Latch |
| 16 | 5NT3707567 | Red Push/Pull E-Stop Pushbutton |
| 17 | 5NT3707568 | Normally Closed Contact Block |
| 18 | 5NT6059050 | Pot. Assy |
| | 5NT6059054 | Main Power Cord (Not Shown) |
| | 5NT3707255 | Cable Tie (Not Shown) |
| | 5NT3708378 | .25 Thick Foam Strip (Not Shown) |

# 5NT27402 WIRING DIAGRAM

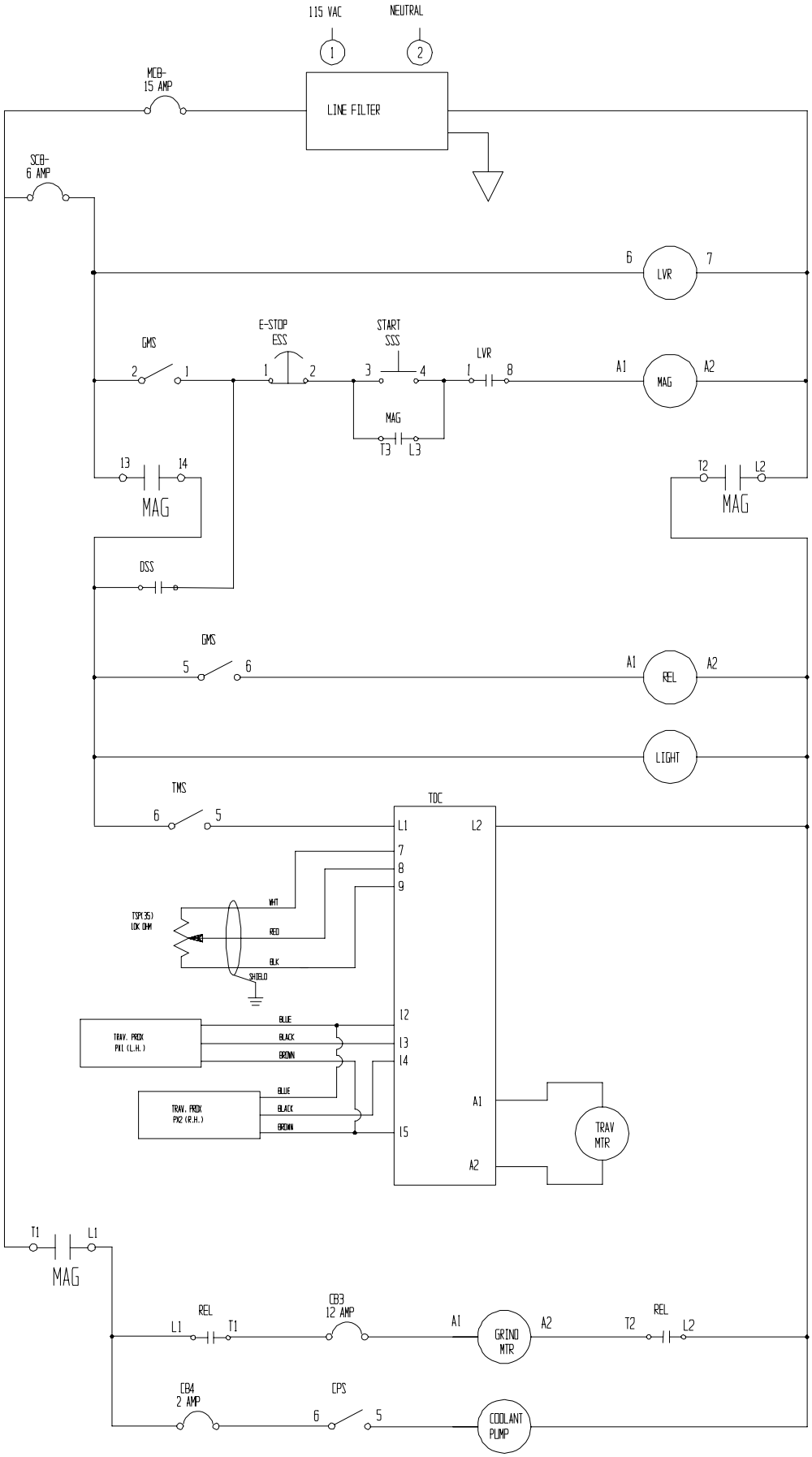


# 5NT27402 WIRING DIAGRAM




CB1-CIRCUIT BREAKER 1
CB2-CIRCUIT BREAKER 2
DSS-DOOR SAFETY SWITCH
ESS-EMERGENCY STOP SWITCH
FTR-LINE FILTER
GMS-GRINDING MOTOR SWITCH
LVR-LOW VOLTAGE RELAY
MAG-MAGNETIC STARTER
PX1-LEFT PROXIMITY SWITCH
PX2-RIGHT PROXIMITY SWITCH
REL-GRINDING MOTOR RELAY

SSS-SYSTEM START SWITCH
TB1-TERMINAL STRIP 1
TB2-TERMINAL STRIP 2
TBG-TERMINAL BLOCK GREY
TBW-TERMINAL BLOCK WHITE
TSP-TRAVERSE SPEED POT
TDC-TRAVERSE DRIVE CONTROL


115 VAC
NEUTRAL
1
2
MCB-
15 AMP
LINE FILTER
SCB-
6 AMP
6
LVR
7
GMS
E-STOP
ESS
START
SSS
LVR
2
1
1
2
3
4
1
8
A1
MAG
A2
MAG
T3
L3
13
14
MAG
T2
L2
MAG
DSS
GMS
5
6
A1
REL
A2
LIGHT
TMS
6
5
TDC
L1
L2
7
8
9
WHT
TSP(35)
10K OHM
RED
BLK
SHIELD
12
13
14
BLUE
BLACK
BROWN
TRAV. PROX
PX1 (L.H.)
BLUE
BLACK
BROWN
TRAV. PROX
PX2 (R.H.)
A1
15
A2
TRAV
MTR
T1
L1
MAG
REL
L1
T1
CB3
12 AMP
A1
GRIND
MTR
A2
T2
REL
L2
CB4
2 AMP
CPS
6
5
COOLANT
PUMP

FRONTIER
EQUIPMENT™

# MANUEL DE L'OPÉRATEUR

# Affûteuse de contre-lame

## BG1500

FRONTIER EQUIPMENT™

(REV. 5/19/2011)

# LISTE DE VÉRIFICATION DE PRÉPARATION / INSTALLATION

Affûteuse de contre-lame BG1500 de Frontier

CETTE LISTE DE VÉRIFICATION DOIT RESTER DANS LE MANUEL DU PROPRIÉTAIRE

Il est de la responsabilité du concessionnaire de compléter les procédures énumérées ci-dessous, ensuite réviser cette liste de vérification avec le client à la livraison ou la vente de cet équipement. La formation sur l'installation dépasse les fonctions de base opérationnelle de l'équipement. Pour assurer une formation adéquate, nous demandons que les éléments suivants soient révisés par votre concessionnaire John Deere. Prière de cocher pour vous assurer que vous comprenez les points suivants avant que la formation d'installation soit terminée :

- ☐ 1. L'équipement est complètement assemblé
- ☐ 2. Tous les écrans de protection sont en place et en bon état.
- ☐ 3. Tous les autocollants sont en place et lisibles.
- ☐ 4. Bon état général (comme la peinture, la soudure, l'électricité)
- ☐ 5. Vérifier qu'il y a suffisamment de puissance électrique pour faire fonctionner la machine.
- ☐ 6. Réviser les manuels de l'opérateur, d'assemblage et d'entretien, et tout autre matériel de formation supplémentaire si disponible.
- ☐ 7. Réviser le bon positionnement de la contre-lame
- ☐ 8. Réviser la position de l'interrupteur de proximité de traversée
- ☐ 9. Expliquer l'utilisation des drapeaux de configuration
- ☐ 10. Expliquer le réglage de la hauteur de la roue d'affûtage.
- ☐ 11. Discuter du système de fluide de refroidissement par noyage de la meuleuse.
- ☐ 12. Réviser le nettoyage/rhabillage de la roue
- ☐ 13. Réviser l'entretien général

Signature du concessionnaire _____

Signature de l'acheteur _____

# Sécurité

IMPORTANT MESSAGE DE SÉCURITÉ POUR LES PROPRIÉTAIRES / OPÉRATEURS D'AFFÛTEUSES DE CONTRE-LAME

La sécurité est une préoccupation majeure dans la conception, la fabrication, la vente et l'utilisation d'affûteuses de contre-lame. En tant que fabricant d'affûteuses de contre-lame, nous voulons vous confirmer, à vous, nos clients, notre préoccupation pour la sécurité. Nous voulons également vous rappeler les règles de base, simples, du bon sens de sécurité lors de l'utilisation d'une affûteuse de contre-lame. Le non respect de ces règles peut entraîner des blessures graves ou la mort aux opérateurs ou curieux.

Il est essentiel que toutes personnes impliquées dans l'assemblage, l'opération, le transport, l'entretien et l'entreposage de l'équipement soient conscientes, concernées, prudentes, et bien formées à la sécurité. Toujours utiliser un écran de protection approprié comme spécifié par le fabricant.

Nos machines de série comprennent, comme équipement de série, des gardes ou des écrans de protection pour la roue de meulage, de la signalisation de sécurité et un manuel de l'opérateur. Ne jamais contourner ou faire fonctionner la machine avec l'un des gardes ou dispositifs de sécurité enlevés.

**Lire et bien comprendre toutes les pratiques de sécurité abordées aux pages 4 et 5 de ce manuel. Toutes les règles de sécurité doivent être comprises et respectées par tous ceux qui travaillent avec une affûteuse de contre-lame.**

Avant de faire fonctionner une affûteuse de contre-lame, un opérateur doit lire et comprendre toutes les informations du manuel du propriétaire et les signes de sécurité attachés au produit. Une personne qui n'a pas lu ou compris le manuel du propriétaire et signes de sécurité n'est pas qualifiée pour opérer l'unité. Les accidents se produisent souvent sur les machines qui sont utilisées par quelqu'un qui n'a pas lu le manuel du propriétaire et n'est pas familier avec l'équipement. Si vous n'avez pas un manuel du propriétaire ou les signes de sécurité de série, contacter le fabricant ou votre revendeur immédiatement.

Les affûteuses de contre-lame sont conçues pour un seul opérateur. Ne jamais faire fonctionner la meuleuse avec qui que ce soit proche, ou en contact avec une partie quelconque de la meuleuse. S'assurer que personne d'autre, y compris les curieux, ne soient près de vous lorsque vous utilisez ce produit.

Suivre ces simples règles de sécurité de base, ainsi que les autres identifiées dans le manuel du propriétaire et des signes de sécurité du produit, vous permettra de minimiser les risques d'accidents et d'augmenter votre productivité en utilisant ce produit. Faire attention et s'assurer que tous ceux qui opèrent l'affûteuse savent et comprennent que ceci est une très puissante pièce de machinerie, et si elle est utilisée incorrectement, des blessures graves ou la mort pourraient en résulter. La responsabilité finale de la sécurité incombe à l'opérateur de cette machine.

**AU CONCESSIONNAIRE :**

L'assemblage et l'installation adéquate de ce produit sont la responsabilité du concessionnaire John Deere. Lire le manuel d'instructions et les règles de sécurité. S'assurer que tous les éléments sur la liste de préparation dans le manuel de l'opérateur soient terminés avant de livrer l'équipement au propriétaire.

**AU PROPRIÉTAIRE :**

Lire ce manuel avant d'utiliser votre équipement Frontier. Garder ce manuel à portée de main pour référence future. Exiger que tous les opérateurs lisent attentivement ce manuel et se familiarisent avec tous les ajustements et les procédures d'opération avant de faire fonctionner l'équipement. Des manuels de remplacement peuvent être obtenus auprès de votre concessionnaire.

L'équipement que vous avez acheté a été soigneusement conçu et fabriqué pour assurer une utilisation fiable et satisfaisante. Comme tous les produits mécaniques, il nécessitera d'être nettoyé et entretenu. Lubrifier l'unité comme indiqué. Prière de respecter toutes les consignes de sécurité de ce manuel et autocollants de sécurité sur l'équipement.

Pour le service, votre concessionnaire John Deere a des mécaniciens qualifiés, des pièces de service Frontier authentiques, ainsi que les outils et l'équipement nécessaires pour répondre à tous vos besoins de service.

Utiliser uniquement des pièces de service d'origine Frontier.

# CONSIGNES DE SÉCURITÉ

***Les symboles de sensibilisation à la sécurité*** sont insérés dans ce manuel pour vous alerter d'éventuels ***risques de sécurité***. Lorsque vous voyez ces symboles, suivez leurs instructions.

Le ***Symbole de Mise en garde*** identifie les instructions spéciales ou les procédures qui, si elle ne sont pas respectées, peuvent entraîner des blessures.

Le ***Symbole Attention*** identifie les instructions spéciales ou les procédures qui, si elle ne sont pas respectées, peuvent entraîner des dommages ou la destruction de l'équipement.

1. **GARDER LES GARDES EN PLACE** et en ordre de marche.
2. **RETIRER LES CLÉS ET AUTRES OUTILS.**
3. **GARDER LA ZONE DE TRAVAIL PROPRE.**
4. **NE PAS UTILISER DANS UN ENVIRONNEMENT DANGEUREUX.** Ne pas utiliser la meuleuse dans des endroits humides ou mouillés. La machine est pour une utilisation intérieure seulement. Garder l'aire de travail bien éclairée.
5. **GARDER À DISTANCE TOUS LES VISITEURS.** Tous les visiteurs doivent être maintenus à une distance sécuritaire de la zone de travail.
6. **RENDRE LA ZONE DE TRAVAIL À L'EPREUVE DES ENFANTS** avec des cadenas ou un interrupteur général.
7. **NE PAS FORCER LA MEULEUSE.** Elle fera un meilleur travail et sera plus sécuritaire si elle est utilisée comme spécifié dans ce manuel.
8. **UTILISER LE BON OUTIL.** Ne pas forcer la meuleuse ou un accessoire pour faire un travail pour lequel elle n'a pas été conçue.
9. **PORTER DES VÊTEMENTS APPROPRIÉS.** Ne pas porter de vêtements amples, gants, cravates, ou des bijoux qui pourraient se coincer dans les pièces mobiles. Le port de chaussures antidérapantes est recommandé. Porter un filet protecteur pour les cheveux longs.
10. **UTILISER TOUJOURS DES LUNETTES DE SÉCURITÉ.**
11. **FIXER SOLIDEMENT VOTRE TRAVAIL.** S'assurer que l'unité de coupe est bien fixée avec les pinces fournies avant l'utilisation.
12. **NE PAS TROP TENDRE LES BRAS.** Maintenir un bon équilibre en tout temps.
13. **ENTRENTENIR LA MEULEUSE AVEC SOIN.** Suivre les instructions du manuel d'entretien pour la lubrification et l'entretien préventif.
14. **DÉBRANCHER L'ALIMENTATION ÉLECTRIQUE AVANT L'ENTRETIEN,** ou lors du changement de la meule.
15. **RÉDUIRE LE RISQUE DE DÉMARRAGE INVOLONTAIRE.** S'assurer que tous les interrupteurs soient à la position ARRÊT avant de brancher la meuleuse.
16. **UTILISER LES ACCESSOIRES RECOMMANDÉS.** Consulter le manuel pour les accessoires recommandés. L'utilisation d'accessoires inadéquats peut provoquer des risques de blessures.
17. **VÉRIFIER LES PIÈCES ENDOMMAGÉES.** Un garde ou toute autre pièce qui est endommagée ou ne remplit pas sa fonction prévue devrait être correctement réparée ou remplacée.
18. **NE JAMAIS LAISSER LA MEULE EN ÉTAT DE MARCHE SANS SURVEILLANCE. ÉTEINDRE.** Ne pas laisser la meule avant qu'elle ne soit complètement arrêtée.
19. **CONNAITRE VOTRE ÉQUIPEMENT.** Lire attentivement ce manuel. Apprendre son application et limites ainsi que certains risques potentiels.
20. **GARDER TOUS LES AUTOCOLLANTS DE SÉCURITÉ PROPRES ET LISIBLES.** Si les autocollants de sécurité deviennent endommagés ou illisibles pour une raison quelconque, les remplacer immédiatement. Se référer aux illustrations des pièces de rechange du manuel d'entretien pour la location et les numéros de pièces des autocollants de sécurité.
21. **NE PAS OPÉRER LA MEULEUSE LORSQUE SOUS L'INFLUENCE DE DROGUES, D'ALCOOL OU DE MÉDICAMENTS.**

# CONSIGNES DE SÉCURITÉ

**UNE MAUVAISE UTILISATION DE LA MEULE PEUT CAUSER DES SÉRIEUX BRIS ET DES BLESSURES GRAVES.**

**L'affûtage est une opération sans danger si les quelques règles élémentaires ci-dessous sont respectées. Ces règles sont basées sur les matières contenues dans le Code de sécurité ANSI B7,1 pour « l'utilisation, les soins et la protection des meules ». Pour votre sécurité, nous vous suggérons de profiter de l'expérience des autres et de respecter attentivement ces règles.**

## FAIRE

1. Toujours **MANIPULER ET ENTREPOSER** les meules de manière **SÉCURITAIRE**.
2. **INSPECTER VISUELLEMENT** toutes les meules pour des dommages possibles avant de les monter.
3. **VÉRIFIER LA VITESSE DE LA MACHINE** contre la vitesse maximale de fonctionnement sécuritaire établie indiquée sur la meule.
4. **VÉRIFIER LES BRIDES DE FIXATION** pour un diamètre égal et approprié.
5. **UTILISER LES BUVARDS DE MONTAGE** lorsqu'ils sont fournis avec les meules.
6. S'assurer que **LA RÉGLETTE** est adéquatement ajustée.
7. **UTILISER TOUJOURS UN GARDE DE SÉCURITÉ COUVRANT** au moins la moitié de la meule.
8. Permettre aux meules **NOUVELLEMENT MONTÉES DE ROULER** à la vitesse de fonctionnement, avec un garde en place, pour au moins une minute avant le meulage.
9. Porter toujours des L**UNETTES DE SÉCURITÉ** ou un certain type de protection oculaire lors du meulage.
10. **NE PAS COUPER LE FLUIDE DE REFROIDISSEMENT** avant d'arrêter pour éviter de créer une condition hors équilibre.

## NE PAS FAIRE

1. **NE PAS** utiliser une meule fissurée ou celle qui **A ÉTÉ ÉCHAPPÉE** ou qui est endommagée.
2. **NE PAS FORCER** une meule sur la machine **OU MODIFIER** la taille du trou de fixation - si la meule ne s'adapte pas à la machine, aller en chercher une qui s'adaptera.
3. **NE** jamais **DÉPASSER LA VITESSE D'OPÉRATION** établie pour la meule.
4. **NE PAS** utiliser des brides de fixation sur lesquelles les surfaces d'appui **NE SONT PAS PROPRE, PLATES ET SANS BAVURES.**
5. **NE PAS SERRER** l'écrou de fixation de manière excessive.
6. **NE PAS** meuler sur le **CÔTÉ DE LA MEULE** (voir le code de sécurité b7,2 pour les exceptions).
7. **NE PAS** démarrer la machine jusqu'à ce que le **CARTER DE MEULE SOIT EN PLACE.**
8. **NE PAS BLOQUER** le travail sur la meule.
9. **NE PAS SE TENIR DIRECTEMENT DEVANT** une meule chaque fois que la meuleuse est démarrée.
10. **NE PAS FORCER LE MEULAGE** de sorte que le moteur ralentisse notablement ou que le travail devienne chaud.

**ÉVITER L'INHALATION DE LA POUSSIÈRE** générée par des opérations de meulage et de découpage. L'exposition à la poussière peut causer des troubles respiratoires. Utiliser des respirateurs approuvés par NIOSH ou MSHA, des lunettes de sécurité ou des écrans faciaux et des vêtements de protection. Prévoir une ventilation suffisante pour éliminer les poussières, ou pour maintenir le niveau de poussière en dessous de la valeur limite pour les poussières nuisibles telles que classées par l'OSHA.

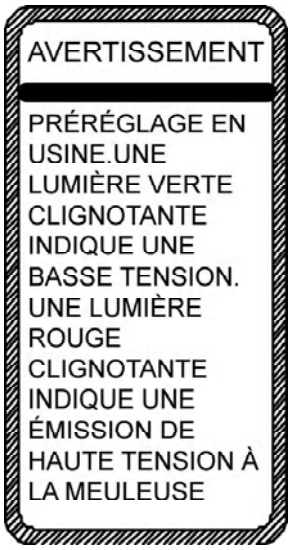
# TABLE DES MATIÈRES

**Cette machine est destinée à l'affûtage des contre-lames de tondeuse à cylindre SEULEMENT. Toute utilisation autre que cela peut causer des blessures et annuler la garantie.**

**Pour assurer la qualité et la sécurité de votre machine et pour maintenir la garantie, vous DEVEZ utiliser des pièces de rechange d'origine fabriquées pour l'équipement et faire faire les travaux de réparation par un professionnel qualifié.**

**TOUS les opérateurs de cet équipement doivent être adéquatement formés AVANT de faire fonctionner l'équipement.**

**Ne pas utiliser d'air comprimé pour nettoyer la poussière de meulage de la machine. Cette poussière peut causer des blessures ainsi que des dommages à la meuleuse. La machine est pour une utilisation intérieure seulement. Ne pas utiliser une laveuse à pression pour nettoyer la machine.**


AVERTISSEMENT
PRÉRÉGLAGE EN USINE.UNE LUMIÈRE VERTE CLIGNOTANTE INDIQUE UNE BASSE TENSION. UNE LUMIÈRE ROUGE CLIGNOTANTE INDIQUE UNE ÉMISSION DE HAUTE TENSION À LA MEULEUSE

## Relais de basse tension

**La meuleuse est équipée d'un relais de haute-basse tension qui est réglé en usine à 100-140 VAC. Si la ligne d'alimentation ne délivre pas de 100-140 VAC de tension sous charge, le relais s'ouvrira et déconnectera le démarreur. Si cela se produit, votre ligne d'alimentation est incorrecte et doit être correcte avant de poursuivre avec la meuleuse.**

## TABLE DES MATIÈRES


Consignes de sécurité ..... Page 2 - 7
Entretien quotidien ..... Page 6
Apprendre à connaître votre meuleuse ..... Page 8 - 14
Consignes d'opération ..... Page 15 - 25


## ENTRETIEN QUOTIDIEN PAR L'OPERATEUR

Sur une base quotidienne, nettoyer la machine en l'essuyant.
Sur une base quotidienne, enlever tous les grains de meulage des arbres de traversée et de la barre d'outillage.
Sur une base quotidienne, vérifier le niveau du liquide de refroidissement du bac d'arrosage. Le liquide doit être au-dessus du puisard.
Sur une base quotidienne, inspecter la machine pour des attaches ou des composants désserés.
Contacter le département d'entretien de votre entreprise si des pièces endommagées ou défectueuses sont constatées.

**NE PAS UTILISER D'AIR COMPRIMÉ POUR NETTOYER LA POUSSIÈRE DE MEULAGE DE LA MACHINE.**

# CONSIGNES DE SÉCURITÉ

**PRIÈRE DE PORTER UNE ATTENTION PARTICULIÈRE AUX AUTOCOLLANTS DE MISE EN GARDE SUIVANTS QUI SONT SITUÉS SUR LA MEULEUSE.**

**T/M DE LA MEULE**

**⚠ CAUTION**

**To Avoid Injury:**
-Do not exceed grinding wheel maximum operating speed of 3600 revolutions per minute.

**⚠ ATTENTION**

**Pour éviter des blessures :**
-Ne dépassez pas la vitesse de fonctionnement maximale de la roue de meulage de 3600 révolutions minute.

**OBJETS TRANCHANTS**

**⚠CAUTION**

**To Avoid Injury:**
-Keep hands away from rotating objects

**⚠ATTENTION**

**Para evitar lesiones:**
-Mantenga las manos alejadas de los objetos giratorios

**ÉLECTRICITÉ**

**⚠ CAUTION**

**To Avoid Injury:**
-Make sure all electrical power to this machine has been disconnected before removing any electrical panels or covers for maintenance.

**⚠ ATTENTION**

**Pour éviter des blessures :**
-Assurez-vous que l'alimentation électrique de cette machine ait été coupée avant de retirer les panneaux ou couvercles électriques pour l'entretien.

FRONTIER EQUIPMENT

BG1500

**INFORMATIONS D'ORDRE GÉNÉRAL**

**⚠ CAUTION**

**To Avoid Injury:**
-Read Operator's Manual before operating, servicing, or repairing equipment. Follow all safety rules and instructions. (Manuals are available from your selling dealer.)
-Keep bystanders away from equipment during operation. Keep all shields in place and in good condition.
-Wear all of the appropriate safety equipment specified in the Operator's Manual while operating this machine.
-Always make sure machine is off and all machine movement has stopped before leaving machine.
-Never allow children or untrained persons to operate equipment.

**⚠ ATTENTION**

**Pour éviter des blessures :**
-Lisez le manuel de l'opérateur avant d'utiliser, d'entretenir, ou de réparer l'équipement. Suivez toutes les règles et consignes de sécurité. (Les manuels sont disponibles auprès de votre concessionnaire.)
-Ne laissez personne s'approcher de l'équipement pendant son fonctionnement. Gardez tous les écrans de protection en place et en bon état.
-Portez tout l'équipement de sécurité approprié spécifié dans le manuel de l'opérateur pendant le fonctionnement de cette machine.
-Assurez vous toujours que la machine soit hors tension et que tous les mouvements de la machine se soient arrêtés avant de quitter la machine.
-Ne laissez jamais des enfants ou des personnes non qualifiées opérer l'équipement.

Label Sheet
(English - French)
5NT127301

# APPRENDRE À CONNAÎTRE VOTRE MEULEUSE

## SPÉCIFICATIONS

| | |
|---|---|
| Interrupteurs de déplacement | Interrupteurs de proximité sans contact à semi-conducteurs. |
| Largeur hors tout | 61 po [155 cm] |
| Hauteur hors tout | 58 po [148 cm] avec la porte fermée, 81 po [206 cm] avec la porte ouverte |
| Profondeur hors tout | 32 po [82 cm] |
| Poids | 750 lbs. [340 kg] poids à l'expédition 935 lbs. [424 kg] |
| Construction de la base | Base en acier soudée renforcée à usage industriel de précision |
| Rails du traînard | Acier trempé de précision - 1,000 Dia. [25,4 mm] |
| Moteur de tête d'affûtage | Moteur de 3/4HP à courant alternatif, 3450 T/M |
| Niveau sonore | Moins de 75 dBA |
| Traversée automatique | Système de serrage à entraînement par courroie facile à engager |
| Outillage | Support Magnétique pour contre-lame avec supports centraux additionnels |
| Fluide de refroidissement | Système de fluide de refroidissement par noyage intégré. |
| Système de contrôle | *Interrupteurs d'arrêt de sécurité du moteur avec interrupteur de porte<br>*Commande de traversée à vitesse variable. |

# APPRENDRE À CONNAÎTRE VOTRE MEULEUSE

## IDENTIFICATION DES COMPOSANTS DU PANNEAU DE CONTRÔLE COMMANDES POUR LE BG1500

Apprendre la fonction de chaque interrupteur et le bouton du panneau de contrôle. Comme vous lisez et apprenez sur les fonctions de chaque bouton, vous êtes encouragé à tourner ce bouton et visualiser l'opération particulière. Voir la figure 1.

**TOUJOURS PORTER DES LUNETTES DE SÉCURITÉ ADÉQUATES LORS DE L'OPÉRATION DE LA MEULE. NE JAMAIS ALLUMER LA MEULE SANS AVOIR AU PRÉALABLE MIS DES LUNETTES DE SÉCURITÉ.**

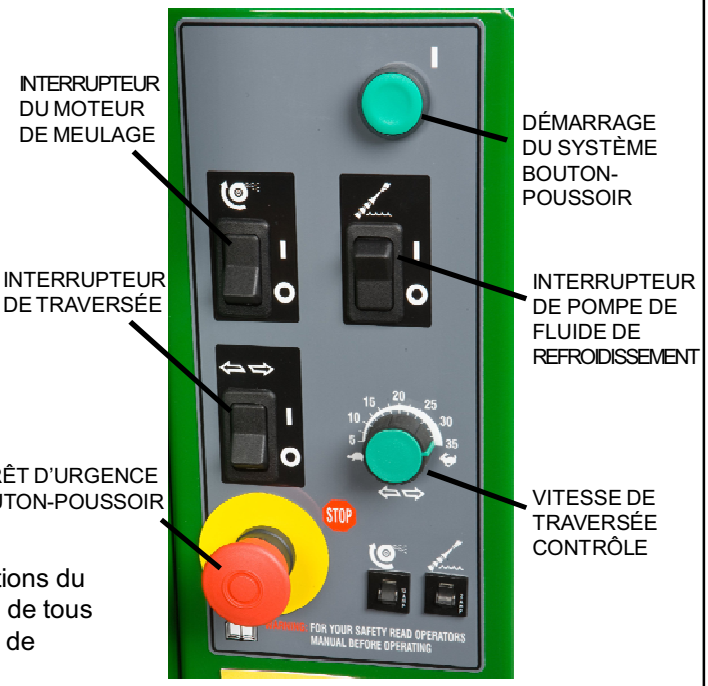

INTERRUPTEUR DU MOTEUR DE MEULAGE
DÉMARRAGE DU SYSTÈME BOUTON-POUSSOIR
INTERRUPTEUR DE TRAVERSÉE
INTERRUPTEUR DE POMPE DE FLUIDE DE REFROIDISSEMENT
ARRÊT D'URGENCE BOUTON-POUSSOIR
VITESSE DE TRAVERSÉE CONTRÔLE
STOP
FOR YOUR SAFETY READ OPERATORS MANUAL BEFORE OPERATING

Figure 1

### BOUTON POUSSOIR D'ARRÊT D'URGENCE

Pousser pour couper toute l'alimentation électrique aux fonctions du panneau de commande. Ceci coupe l'alimentation électrique de tous les moteurs, incluant le moteur de meulage, pompe du fluide de refroidissement, le moteur de traversée, etc. Pour restaurer l'alimentation électrique, tirer sur le bouton et appuyer sur le bouton Démarrer. La conception du gros bouton permet un arrêt rapide de toute alimentation électrique dans une situation d'urgence.

### BOUTON POUSSOIR DE DÉMARRAGE DU SYSTÈME

Le bouton-poussoir vert est l'interrupteur de démarrage du système. Appuyer dessus engagera le démarreur magnétique et mettra en marche le panneau de commande. Le démarreur magnétique ne s'enclenchera pas à moins que le bouton-poussoir d'arrêt d'urgence ait été tiré et que l'interrupteur du moteur de meulage ne soit éteint.

### INTERRUPTEUR DU MOTEUR DE MEULAGE

L'interrupteur du moteur de meulage allume et ferme le moteur de la meule.

### INTERRUPTEUR DE LA POMPE DE FLUIDE DE REFROIDISSEMENT

L'interrupteur de la pompe de fluide de refroidissement allume et ferme la pompe de fluide de refroidissement. Il y a aussi une valve sur le côté de la meulette pour contrôler la quantité de l'écoulement.

### INTERRUPTEUR DU MOTEUR DE TRAVERSÉE

L'interrupteur du moteur de déplacement allume et ferme le moteur de traversée. Il contrôle le mouvement latéral du traînard et de la tête de meule.

### POTENTIOMETRE DE CONTRÔLE DE VITESSE DE TRAVERSÉE

Ce bouton de contrôle définit la vitesse de traversée du traînard de meule. Lorsque réglé au minimum, le traînard s'arrêtera. Lorsque réglé au maximum, le traînard se déplace avec un mouvement de va-et-vient à pleine vitesse. Lors de l'apprentissage d'utilisation de cette machine, c'est une bonne idée de régler cette vitesse au minimum, démarrer les autres fonctions, puis augmenter progressivement la vitesse afin de constater que votre opération et installation sont appropriées.

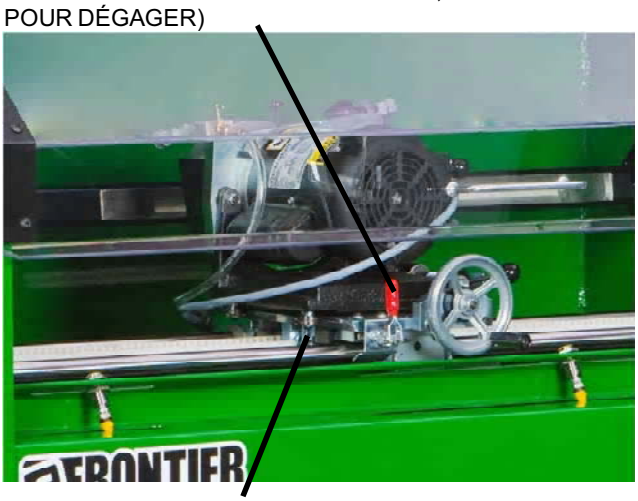
# APPRENDRE À CONNAÎTRE VOTRE MEULEUSE (SUITE)

### ENGAGEMENT ET DÉGAGEMENT DE LA TRAVERSÉE

La courroie qui entraîne le traînard à gauche et à droite peut être engagé ou dégagé par la rotation de la poignée à pince rouge située à l'avant gauche du traînard. Le déplacement du levier vers le haut, engagera la courroie et en le déplaçant vers le bas dégagera la courroie. La pointe de la pince peut être ajustée si nécessaire pour augmenter ou diminuer la tension de la courroie. Voir ajustements dans le manuel de service pour plus de détails.

**SI NÉCESSAIRE, LA POINTE DE LA PINCE DE LA COURROIE DOIT ETRE AJUSTÉE COMME SPÉCIFIÉ DANS LE MANUEL DE SERVICE. SI LA PINCE EST TROP SERRÉE, LA COURROIE NE GLISSERA PAS CE QUI POURRAIT CAUSER DES DOMMAGES À LA MACHINE OU À LA CONTRE-LAME.**

LEVIER D'ENGAGEMENT DE LA TRAVERSÉE (VERS LE HAUT POUR ENGAGER LA COURROIE, VERS LE BAS POUR DÉGAGER)

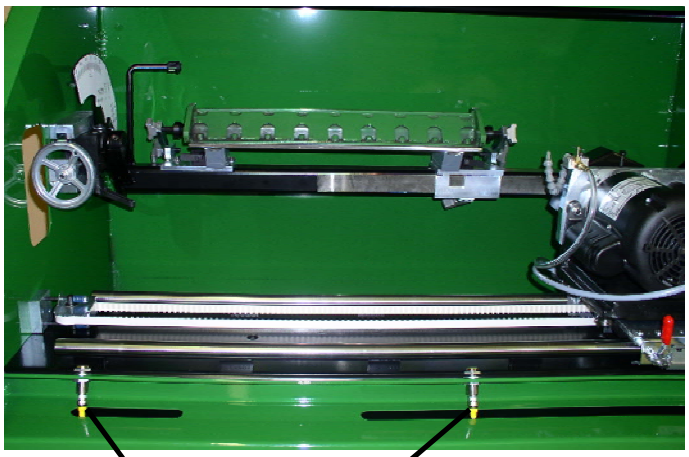



POINTE DE LA PINCE DE LA COURROIE

Figure 2

### INTERRUPTEURS DE PROXIMITÉ DE TRAVERSÉE

Deux interrupteurs mobiles déterminent les limites gauche et droite du traînard. Voir la figure 3. Un voyant DEL s'allume sur l'interrupteur lorsque le support de vérin de commande au fond du traînard se rapproche de la tête de l'interrupteur. Note, il devait y avoir un écart de 3/16 entre la tête de l'interrupteur de proximité et le support de vérin de traversée.



INTERRUPTEURS DE PROXIMITÉ DE TRAVERSÉE

Figure 3

### SYSTÈME DE FLUIDE DE REFROIDISSEMENT

**Buse de refroidissement**

Diriger un flux de fluide de refroidissement sur la contre-lame et la meule. Pour une visée précise, la buse et le tube de raccordement sont totalement flexibles.

COMMENTAIRE : Le tube de raccordement peut être raccourci en retirant des segments comme désiré

**Valve de débit du fluide de refroidissement**

Règle le volume de fluide de refroidissement circulant à la buse. Utiliser que le débit suffisant pour refroidir la contre-lame. Le débit excessif causera des éclaboussures excessives - et n'améliorera **pas** la performance.

TUBE FLEXIBLE ET BUSE

VALVE DE DÉBIT

Figure 4

# APPRENDRE À CONNAÎTRE VOTRE MEULEUSE (SUITE)

## TÊTE DE LA MEULE

**Ajustement vertical excentrique et verrou**
Déplace la tête de meule de haut en bas.

**Volant horizontal**
Déplace l'alimentation de la tête de meule de l'intérieur à l'extérieur.

**Échelle d'ajustement horizontal**
Calibré en incréments de 0,002 dans [0,05 mm], de sorte que vous puissiez déplacer avec précision la meule pour chaque passage sur la face de la contre-lame.

**Vis de blocage du carter de meule**
Un bouton en T retient le garde en position. Le desserrer pour faire pivoter le garde lorsque ce dernier interfère avec la contre-barre.

**Rhabilleur de roue en diamant**
Vous permet de rhabiller la meule. Le nettoyage et le rhabillage de la meule améliore la qualité de l'affûtage.

VIS DE BLOCAGE DU CARTER DE MEULE
LEVIER DE LA CAME VERTICAL
LEVIER DE VERROUILLAGE D'AJUSTEMENT VERTICAL
RHABILLEUR EN DIAMANT

Figure 5

**LE RHABILLEUR EN DIAMANT NE DOIT ÊTRE UTILISÉ QU'AVEC DES MEULES VITRIFIÉES. CETTE MEULE EST EXPÉDIÉE AVEC UNE MEULE DE BORAZON ET UNE BRIQUE DE NETTOYAGE. <u>NE PAS</u> UTILISER LE RHABILLEUR EN DIAMANT INTÉGRÉ SUR LA MEULE DE BORAZON!**

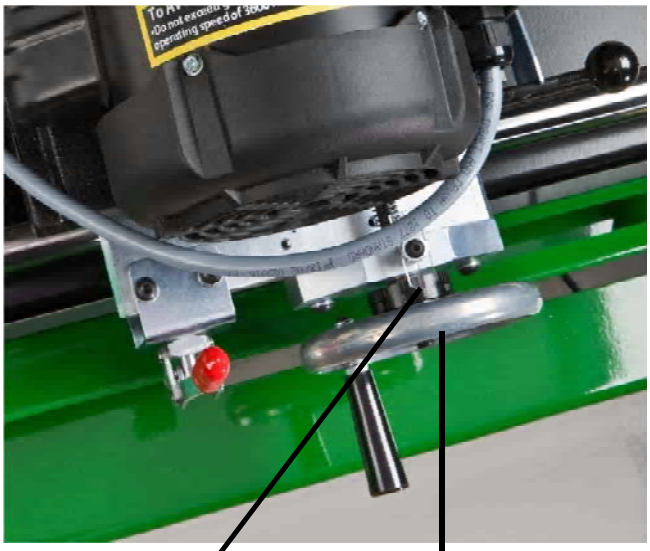



Figure 6

# APPRENDRE À CONNAÎTRE VOTRE MEULEUSE (SUITE)

### SUPPORT DE CONTRE-LAME FIXE (CÔTÉ GAUCHE)

La contre-lame et contre-barre sont maintenues par deux aimants et centres. L'aimant côté gauche et la position du centre sont fixes. Voir la figure 7.

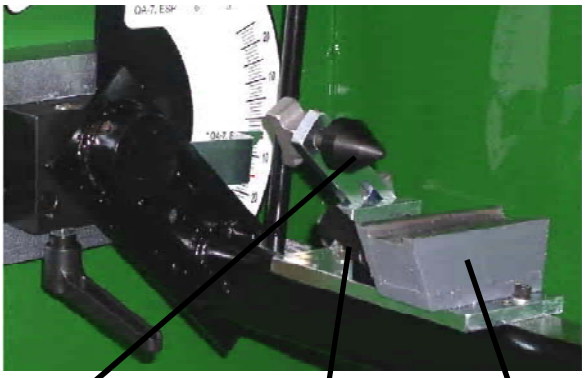



Figure 7

### SUPPORT DE CONTRE-LAME RÉGLABLE (CÔTÉ DROIT)

L'aimant du côté droit et centre sont réglables afin de correspondre à la largeur de la contre-lame.
Voir la figure 8.

### LE BOUTON DE VERROUILLAGE (À L'ARRIÈRE DROITE AVAIT UN SUPPORT RÉGLABLES)

Verrouille en position l'ensemble d'aimant droite et centre sur la glissière de barre d'outillage. Voir la figure 8.

**LORS DU SERRAGE DU SUPPORT RÉGLABLE DE CONTRE-LAME, VÉRIFIER QU'IL EST BIEN SERRÉ AUX SURFACES USINÉES DE LA BARRE D'OUTILLAGE.**

### JAUGE DE CONFIGURATION DE LA CONTRE-LAME

À l'extérieur de chaque aimant se trouve une jauge de configuration de contre-lame rétractable. Ces jauges sont utilisées pour aider à aligner la contre-lame à la meule au traînard de déplacement de la meule. L'opération des jauges sera expliquée dans la section des opérations de ce manuel. Voir la figure 7 et 8.

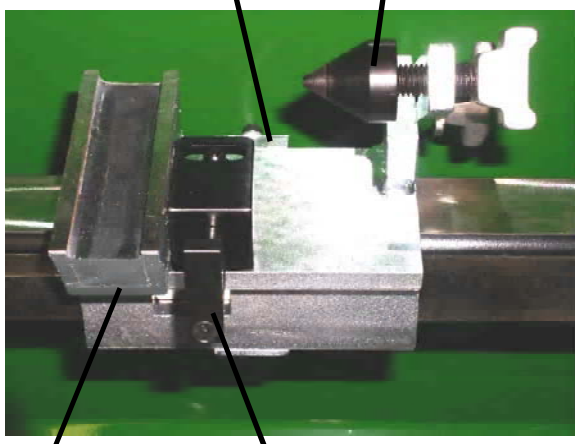



Figure 8

### VOLANT D'AJUSTEMENT DE LA BARRE D'OUTILLAGE

Le volant d'ajustement de la barre d'outillage déplace la barre d'outillage horizontalement. Le volant est utilisé pour aligner l'ensemble d'outillage et la contre-lame à la meule. Cela assure la vie maximale de la contre-lame.
Voir la Figure 9.

### ROTATION DE L'OUTILLAGE

Pour atteindre les angles de contre-lame recommandés, la meule de contre-lame BG1500 dispose d'une barre d'outillage rotatif avec un indicateur d'angle et une poignée de verrouillage. Voir Fig. 9. Pour faire pivoter à un nouvel angle ou faire pivoter de la face avant à la face supérieure, saisir la poignée de rotation d'outillage, puis dévisser la poignée de verrouillage de la barre d'outillage rotative. Tourner manuellement à l'angle désiré comme indiqué sur l'autocollant et serrer la poignée de verrouillage.

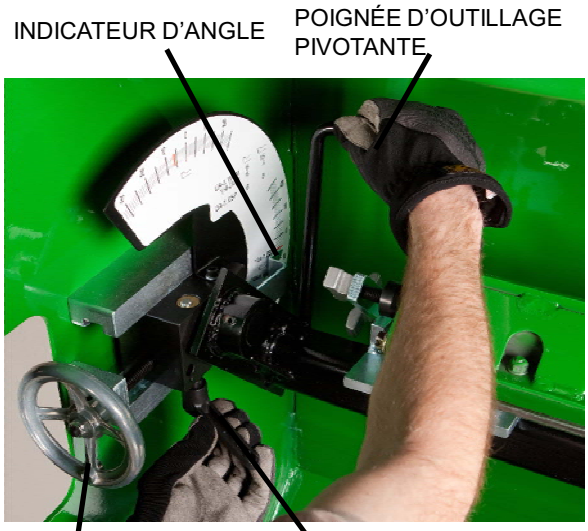

INDICATEUR D'ANGLE
POIGNÉE D'OUTILLAGE PIVOTANTE
BARRE D'OUTILLAGE AJUSTEMENT VOLANT
POIGNÉE DE VERROUILLAGE PIVOTANTE DE LA BARRE D'OUTILLAGE

Figure 9

### QUAND AFFÛTER LA CONTRE-LAME

Lorsque le gazon n'est pas coupé proprement, ou que les extrémités coupées du gazon semblent déchirées ou en haillons, les arêtes de la lame du cylindre et la contre-lame sont devenus arrondis et ont besoin d'affûtage. Voir la figure 10A. Le but de l'affûtage est de restaurer les arêtes vives du cylindre et contre-lame.

**IMPORTANT :** Pour bien affûter une tondeuse à cylindre, vous avez besoin d'affûter les lames du cylindre (en utilisant une meuleuse) **et** remodeler l'arête de la contre-lame.

**REMARQUE :** Les nouvelles contre-lames doivent être affûtées avant d'être mises en service. Les nouvelles contre-lames se déforment et se déplacent pour épouser la forme de la contre-barre au moment de son installation et donc **DOIVENT** être affûtées en tant que surface droite après l'installation.

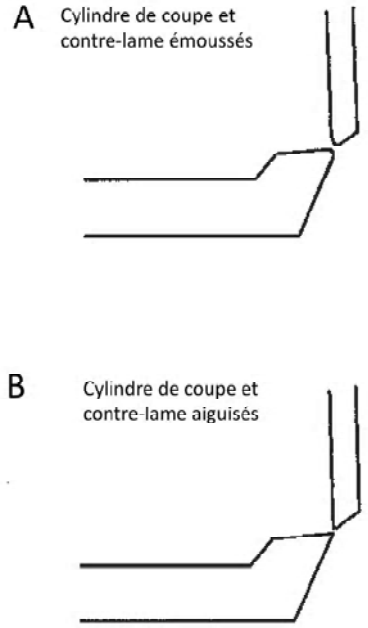



Figure 10

### ANGLE D'AFFÛTAGE DE LA CONTRE-LAME

La contre-lame a deux faces qui, normalement, doivent être affûtées, la face supérieure et la face avant (sur certains modèles, la face avant peut être incurvée et n'a pas besoin d'affûtage).

Les angles indiqués d'affûtage des deux faces varieront selon le modèle. **Toujours suivre les spécifications recommandées par le manufacturier pour les angles de contre-lame.**

Angles typiques de contre-lame :

- Il y aura de +4 à -10 degrés d'angle de dégagement d'affûtés sur la face supérieure. L'angle est **habituellement** mesuré par rapport à la surface de montage de la contre-lame. Voir la figure 11A.
- Il y aura de 00 à 30 degrés d'angle de dégagement d'affutés sur la face avant. L'angle est **habituellement** mesuré par rapport à une ligne **perpendiculaire** à la surface de montage de la contre-lame. Voir la figure 11B.

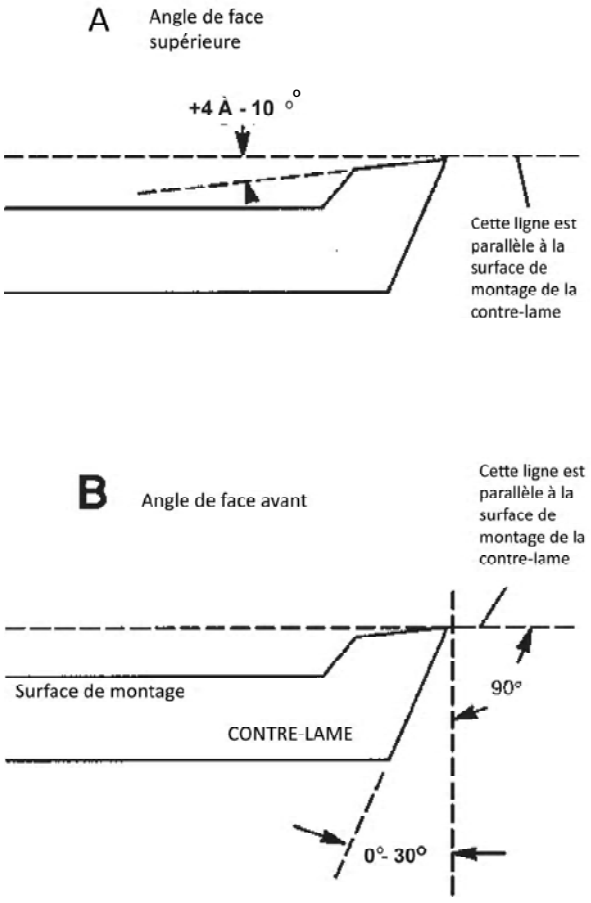

A
Angle de face supérieure
+4 À - 10 °
Cette ligne est parallèle à la surface de montage de la contre-lame
B
Angle de face avant
Cette ligne est parallèle à la surface de montage de la contre-lame
Surface de montage
CONTRE-LAME
90°
0°- 30°

Figure 11

**TERMES :**

Contre-lame - la lame fixe dans une tondeuse à cylindre.

Support de contre - lame ou contre-barre - la contre-lame est montée à ce longeron du châssis avec des vis ou des rivets.

Face supérieure - l'état de la surface rectifiée horizontale de la contre-lame.

Angle de dépouille avant - l'angle entre l'angle vertical et l'angle d'affûtage recommandé par le fabricant.

Angle de dépouille supérieur - l'angle entre l'angle horizontal et l'angle d'affûtage recommandé par le fabricant.

**Angles avant et supérieur recommandés**

Si votre modèle n'est pas répertorié, consulter votre manuel de John Deere pour les angles d'affûtage recommandés.

## Angle d'affûtage de contre-lame John Deere

| Utilisé sur | Description | Numéro de pièce | De série sur | Angle de meulage de face avant | Angle de meulage supérieur |
|---|---|---|---|---|---|
| 220A/B/C WGM<br>Tous les 22 po QA5<br>Tous les 22 po Standard/Moyen | 22 po Standard | ET17533 | 250DB à 11 lames; 2500E à 11 lames;. 220C, 220 E-Cut; 7500 à 11 lames; 750D E-Cut à 11 lames; 8500 à 11 lames; 8500 E-Cut 11-lames | 15 | 6 |
| | 22 po Tournament | ET17534 | | 15 | 6 |
| | 22 po Fairway, coupe basse | ET17532 | | 15 | 6 |
| | 22 po Fairway, coupe haute | ET177S7 | 2500B 7-blade; 2500E 7-blade; 7500 7-blade; 7500 E-Cut 7-Made; 8500 7-blade; 8500 E-Cut 7-lames | 5 | 6 |
| | 22 po coupe basse | MT7351 | | 15 | 6 |
| | 3 0 mm w; Insertion durcie | ET11066 | | 15 | 6 |
| 180A/B/C WGM<br>Tous les 18 po QA5 | 2 5 mm Tournament | MT4846 | 180C | 15 | 6 |
| | 18 po coupe basse | MT7350 | 8000 E-Cut 11-lames | 15 | 6 |
| | 18 po Fairway | TCU25299 | 8000 E-Cut à 11 lames | 15 | 6 |
| 260B/C WGM | 26 po Standard | MT6947 | 260C | 15 | 6 |
| | 26 po Fairway | MT6346 | | 15 | 6 |
| Tous les 22 po QA7<br>Tous les 22 po ESP | 22 po Standard | ET17751 | 7700 8-lames; 87C0 8-lames | 5 | 6 |
| | 22 po ToumamenfLow-Cut Fairway | MT192B | 7700 10-blade; 8700 10-lames | 5 | 6 |
| | 22 po Tournament* coupe très basse | MT3983 | | 5 | 6 |
| Tous les 26 po QA7<br>Tous les 26 po ESP | 26 po Standard | ET17752 | 2S53B;7200 | 5 | 6 |
| | 26 po Tournament | MT6949 | | 5 | 6 |
| Tous les 30 po QA7 et ESP | 30 po Standard | MT1973 | 2653B;7200 | 5 | 6 |
| 30 po ESP pour 365<br>30 po ESP pour 1905 | 10 mm | ET16755 | | 5 | 6 |
| | 13 mm | ET16756 | | 5 | 6 |
| MKI/MK2<br>BEAVER UNITS | 10 mm | MT1117 | | 5 | 6 |
| | 13 mm | MT1118 | | 5 | 6 |

# CONSIGNES D'OPÉRATION (SUITE)

## MONTAGE D'UNE MEULE

Pour remplacer la meule : Voir la figure 12.

1. Tout d'abord, éteindre la machine en appuyant sur le bouton d'arrêt d'urgence.

2. Utiliser la clé de la meule fournie avec la meuleuse pour dévisser la bride de fixation qui maintient la meule.

**LA BRIDE DE VERROUILLAGE COMPORTE UN FILETAGE GAUCHER, MAINTENIR LA ROUE ET TOURNER LA CLÉ TOUT EN REGARDANT LA BRIDE DE VERROUILLAGE POUR DESSERRER.**

3. Retirer la vieille meule et installer la nouvelle.

4. Visser serré a main la bride, puis serrer d'environ 1/8 tour avec la clé.La bride s'auto-serrera lorsque le moteur est allumé.

Figure 12

**(MEULES VITRIFIÉES)**
**SI LA BRIDE DE ROUE EST TROP SERRÉE, LA MEULE PEUT SE FISSURER ET SE DÉTACHER.**

5. (MEULES VITRIFIÉES)
Après avoir installé une nouvelle meule ou une meule différente, il est recommandé de la rhabiller avant d'affûter. Le rhabillage rectifie la surface de meulage de la roue et enlève le vernis dur qui parfois reste du processus de fabrication. Le rhabillage de la roue prépare bien la roue pour le meulage.

**LES MEULES DISPONIBLES POUR LA MEULEUSE DE CONTRE-LAME BG1500**

| MEULE NUMÉRO DE PIÈCE | COULEUR/DESCRIPTION/GRANDEUR | GRAIN | |
|---|---|---|---|
| 5NT3700060 | Blanc/rouge (rubis) roue de coupe arrondie alésage de 6/3-1/4 x 2 X 0,627 po, rubis vitrifié | 60 | |
| 5NT3700062 | ROUE DE COUPE ARRONDIE Blanc, alésage de 6/3-1/4 x 2 X 0,627 po, vitrifié | 46 | |
| 5NT3700268 | Blanc/rouge (rubis) roue de coupe droite, alésage de 6 x 2 x 0,627 po, vitrifié rubis | 60 | |
| 5NT3700411 | Roue de coupe droite, alésage de 6 x 2 x 1,25 po, vitrifié | 46 | |
| 5NT3700670 | Coupe de roue - droite de Borazon, alésage de 6 x 1-1/2 x 0,625 po | 60 | |
| 5NT3700696 | Roue de coupe droite de Borazon, alésage de 6 x 1-1/2 x 0,625 po | 120 | Affûtage standard Roues |

# CONSIGNES D'OPÉRATION (SUITE)

## RHABILLAGE/NETTOYAGE DE LA MEULE

Nettoyer ou rhabiller la meule lorsqu'il y a un quelconque vitrage. Le vitrage est l'accumulation de poussière de pierre, de grain de rectification, et de fluide de refroidissement sur la face de la roue. Pour de meilleurs résultats avec une roue vitrifiée, rhabiller la roue avant de faire le meulage final.

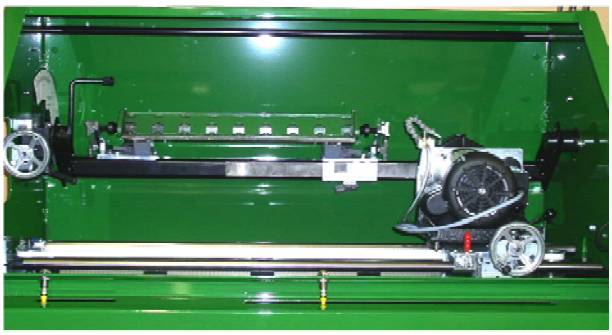


Figure 13

**SE RÉFÉRER AUSSI AUX « RÈGLES DE SÉCURITÉ LORS DU MEULAGE » À LA PAGE 3.**

Pour le nettoyage ou le rhabillage, toujours déplacer la tête de meule sur le côté droit de la machine (Figure 13) afin d'être dégagé de la contre-lame.

## NETTOYAGE D'UNE MEULE DE BORAZON

Ne pas utiliser le rhabilleur en diamant intégré sur la meule de borazon! Si la roue de Borazon n'affûte pas efficacement utiliser le bâton de nettoyage pour remettre la roue en état. Pour utiliser le bâton de nettoyage, bien tremper le bâton dans de l'eau. Mettre en marche le moteur de meulage, si ce n'est déjà fait. Une fois que le moteur est à pleine vitesse, éteindre le moteur. Dès que l'appareil est hors tension, appuyer le bâton de nettoyage DIRECTEMENT sur la surface de meulage de la roue jusqu'à ce que la roue glisse et s'arrête. Répéter cette procédure si nécessaire jusqu'à ce que la roue affûte efficacement.

**NE PAS DÉPLACER LE BÂTON DE NETTOYAGE LATÉRALEMENT. LE DÉPLACEMENT DU BÂTON DE NETTOYAGE LATÉRALEMENT ÉRODERA LE LIANT SUR LES CÔTÉS DES PARTICULES DE MEULAGE. CELA RÉDUIRA GRANDEMENT LA VIE DE LA ROUE.**

## RHABILLAGE D'UNE MEULE VITRIFIÉE

Lorsque la roue tourne, soulever le bras de mouvement du rhabilleur hors de son support et le pousser vers l'avant. Balancer le rhabilleur près de la face de meulage de la roue et tourner l'anneau de réglage jusqu'à ce que la pointe de diamant touche **À PEINE** la roue. Voir la figure 16. Si le rhabilleur est ajusté trop loin dans la roue, la zone soutenant le diamant sera meulée et le diamant pourrait se détacher. Faire pivoter la pointe du diamant du rhabilleur sur toute la largeur de la roue à deux reprises. Lorsque vous avez terminé, tourner la poignée dans le sens des aiguilles d'une montre contre le support de blocage avant de replier et de replacer le bras de mouvement du rhabilleur dans le support. Voir la figure 15.

**NOTE :** Le rhabillage excessif abrégera la vie de la roue. Trop peu de rhabillage inhibera l'affûtage.

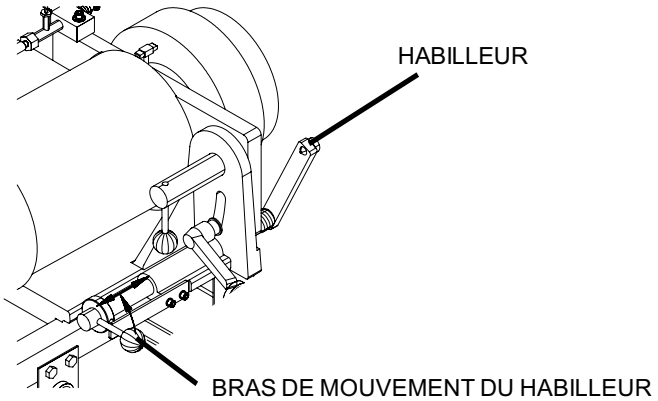



Figure 15 habilleur verrouillé

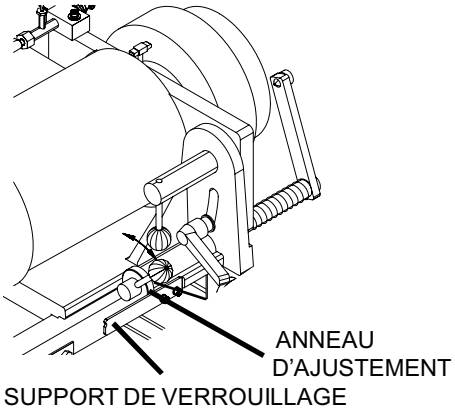



Figure 16 habilleur déverrouillé

**Remplacement de la roue**

ROUE DE BORAZON - Il y a environ 1/8 po [3,2 mm] de matériel de meulage à l'extrémité de la roue. Quand il reste une minime quantité de matériel de meulage sur la roue, elle doit être remplacée.

ROUE VITRIFIÉE - Une nouvelle roue de meulage vitrifiée a 2 po [51 mm] de profondeur. Quand elle s'use jusqu'à une profondeur de 0,75 po [19 mm], elle doit être remplacée. Voir la figure 17.

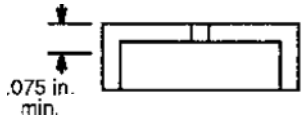



Figure 17

# CONSIGNES D'OPÉRATION (SUITE)

**UTILISATION DU FLUIDE DE REFROIDISSEMENT PAR NOYAGE**

Pour une qualité de meulage, nous recommandons fortement l'utilisation du fluide de refroidissement pas noyage pour éviter l'accumulation de chaleur sur l'arête du couteau.

**SI VOUS MEULEZ À SEC, NE JAMAIS LAISSER L'ARÊTE DE LA CONTRE-LAME CHANGER DE COULEUR OU VOUS RISQUEZ DE PERDRE L'ÉTAT DE DURETÉ DE L'ARÊTE DU COUTEAU.**

**TOUJOURS LIRE LA FICHE SIGNALÉTIQUE (FS) POUR LE FLUIDE DE REFROIDISSEMENT QUE VOUS UTILISEZ. LES AVERTISSEMENTS CI-DESSOUS SONT LES AVERTISSEMENTS QUI S'APPLIQUENT À LA PLUPART DES FLUIDES DE REFROIDISSEMENT.**

**ÉVITER LE CONTACT DU FLUIDE DE REFROIDISSEMENT AVEC LES YEUX : IL PROVOQUERA UNE IRRITATION DES YEUX. PORTER UN ÉCRAN FACIAL OU DES LUNETTES POUR MANIPULER LE CONCENTRÉ. EN CAS DE CONTACT, RINCER LES YEUX AVEC DE L'EAU PENDANT 15 MINUTES ET CONSULTER UN MÉDECIN.**

**ÉVITER DE RESPIRER LA BRUINE. ASSURER UNE VENTILATION LOCALE. GARDER LE FLACON DE CONCENTRÉ FERMÉ LORSQU'IL N'EST PAS UTILISÉ.**

**LE CONTACT CONTINU DE CONCENTRÉ SUR LA PEAU PEUT PROVOQUER UNE IRRITATION. LAVER AVEC DU SAVON ET DE L'EAU APRÈS LE CONTACT.**

**NE PAS INGÉRER. EN CAS D'INGESTION, CONSULTER UN MÉDECIN ET NE PAS FAIRE VOMIR.**

**(UN DANGER POTENTIEL S'APPLIQUE AU CONCENTRÉ, ET L'EST MOINS À LA DILUTION NORMALES D'UTILISATION.)**

**Mélange du fluide de refroidissement**

Mélanger le fluide de refroidissement numéro de pièce 5NTBG1509002 dans une proportion de 50 parties d'eau pour 1 partie de concentré. Se référer également à l'étiquette sur le contenant de fluide de refroidissement. Si le bac d'arrosage du fluide de refroidissement est vide, cela prendra environ 6,5 galons d'eau et une chopine de concentré [24,6 litres d'eau, et 0,5 litre de concentré].

**LE RAPPORT DU FLUIDE DE REFROIDISSEMENT DOIT ÊTRE UTILISÉ TEL QUE SPÉCIFIÉ. UNE CONCENTRATION TROP ÉLEVÉE OU TROP FAIBLE ENTRAÎNERA DES PROBLÈMES DE CORROSION ET DE PERFORMANCE.**

**L'UTILISATION DE FLUIDE DE REFROIDISSEMENT AUTRE QUE LE CONCENTRÉ DE FLUIDE DE REFROIDISSEMENT FOURNIT PAR LE MANUFACTURIER EST DECONSEILLÉ. DES CONCENTRÉS DE FLUIDE DE REFROIDISSEMENT DE REMPLACEMENT POURRAIENT CAUSER DE LA CORROSION, DU GOMMAGE OU DES PROBLÈMES DE MEULAGE.**

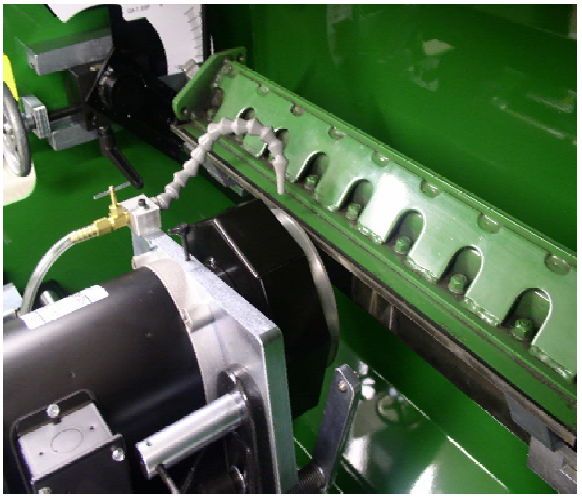


Figure 18

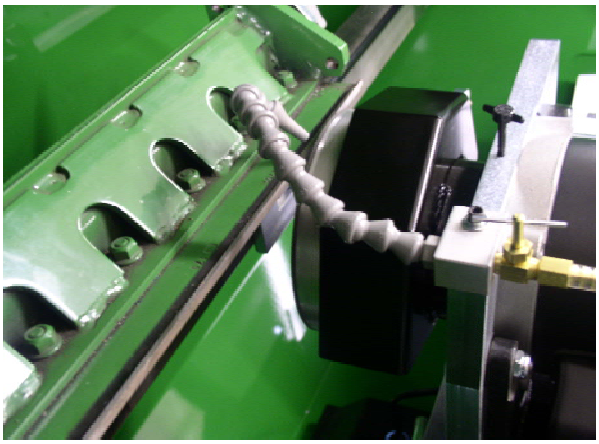


Figure 19

**Utilisation du fluide de refroidissement**

Diriger la buse de sorte que le fluide de refroidissement soit pulvérisé sur la face de la contre-lame devant être meulée. Figure 18 ou 19. Du fluide de refroidissement sera alors aussi dévié sur la meule. Régler la valve de débit pour qu'il y ai un flux régulier de fluide de refroidissement. Éviter un débit plus puissant que nécessaire, un débit excessif du fluide de refroidissement ne refroidit pas plus, et augmente les éclaboussures.

**Niveau de liquide dans le réservoir de fluide de refroidissement**

Vérifier le niveau du liquide dans le bac d'arrosage du fluide de refroidissement tous les jours pour éviter d'en manquer pendant le meulage. Gardez le niveau de fluide de refroidissement entre 0,25 à 0,50 pouces [6-12 mm] au dessus du puisard de fluide de refroidissement. L'orifice d'aspiration de la pompe doit **toujours** être complètement immergé dans l'eau. Ne jamais ajouter de l'eau pure au fluide de refroidissement lorsque le niveau est faible. Toujours ajouter de l'eau et du concentré dans des proportions appropriées. Il est recommandé de prémélanger le fluide de refroidissement et l'eau dans un récipient séparé à cette fin.

# CONSIGNES D'OPÉRATION (SUITE)

**MONTAGE D'UNE CONTRE-LAME POUR LE MEULAGE**

**Inspecter et nettoyer la contre-lame**
Vérifier la contre-lame pour des dommages (fissures, déformations, usure des bagues, usure excessive de la contre-lame). Remplacer ou réparer si nécessaire, voir le manuel du fabricant de l'unité de coupe. Nettoyer à fond la contre-lame, en particulier en dessous, où les aimants s'attacheront.

**Il est recommandé que vous brossiez soigneusement le dessous de la contre-lame avant le montage.**

**Préparation de la machine pour le montage de la contre-lame**
Positionner la meulette complètement à droite, puis déplacer la meule à l'arrière (à l'écart des aimants) pour obtenir le dégagement de la contre-lame. Faire pivoter l'ensemble d'outillage à la position horizontale (Position de meulage face avant) et régler l'angle de contre-lame à l'angle face avant 0. Toujours essuyer toute particule de meulage, saleté, etc. des aimants et de la glissière de barre d'outillage droite avant de monter la contre-lame.

**L'UTILISATION D'UNE ROUE DE COUPE ARRONDIE POUR UN DÉGAGEMENT SUPPLÉMENTAIRE**
La forme de certaines contre-barres nécessite l'aide d'une meule de coupe arrondie **optionnelle** pour rester à l'écart des lunettes. Voir la figure 20.

Les roues de coupe arrondie peuvent être commandées en plusieurs versions de 6 po [150 mm] de diamètre. Pour la plupart des applications, la roue de borazon de 6 po ayant une coupe droite est utilisée. Toutefois, si les brides de montage des extrémités de la contre-lame sont plus de 2 po [50 mm] de haut ou à proximité de la face avant du couteau, vous pourriez avoir besoin d'une meule de coupe arrondie optionnelle de 6 po.

Pour les numéros de pièces et descriptions des meules disponibles, se référer à la liste des meules à la page 15.

**ROTATION DU CARTER DE MEULE**
Certaines contre-lames et contre-barres ont les cornes de montage si près de la face supérieure de la contre-lame qu'il n'y a pas de jeu pour le carter de meule. Pour ces applications, généralement une meule de coupe arrondie devrait être utilisée et le carter de meule peut être desserré et pivoté de sorte que la zone de dégagement du carter permette à la contre-lame d'être meulée sans obstruction. Une fois terminé, **TOUJOURS** repositionner le garde à sa position normale avec l'encoche de dégagement vers le bas.
Voir la figure 20

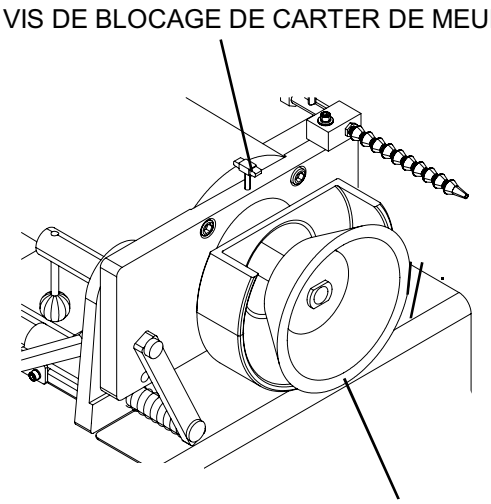



Figure 20

**POUR LA SÉCURITÉ DES UTILISATEURS, LE CARTER DE MEULE DOIT ETRE UTILISE AVEC L'AIRE DE DÉGAGEMENT VERS LE HAUT SEULEMENT LORSQUE NÉCESSAIRE POUR LE DÉGAGEMENT DE LA CONTRE-BARRE.**

# CONSIGNES D'OPÉRATION (SUITE)

## MONTAGE D'UNE CONTRE-LAME POUR AFFÛTAGE (Suite)

**Montage de la contre-lame**

1. Tirer les deux pointes de jauge et tourner les jauges en position, vers le haut. Desserrer le bouton de verrouillage et l'aimant de droite et l'assemblage du centre. Voir la Figure 21. Régler la contre-lame/ l'assemblage de la contre-barre sur les aimants. Déplacer l'assemblage d'aimants du côté droit jusqu'à ce que les pointes de la jauge d'ajustement de la contre-lame soient aux deux extrémités de la contre-lame, puis serrer le bouton de verrouillage du support ajustable du côté droit suffisamment pour sécuriser l'aimant. Lors du serrage, s'assurer que le montage est serré sur les surfaces usinées de la barre d'outillage.

2. Positionner la contre-lame de sorte que la pointe non utilisée d'une contre-lame utilisée ou que les extrémités d'une nouvelle contre-lame soient sur la pointe de la jauge. Voir la Figure 22 Tirer la?contre-lame fermement vers l'avant contre les pointes de la jauge. Installer les centres en desserrant les poignées de verrouillage des bras juste suffisamment pour faire glisser les bras et desserrer les boutons de verrouillage central. Positionner le centre dans un trou de la contre-lame et serrer le bouton de verrouillage central et la poignée de verrouillage des deux côtés. Voir la Figure 21 et 22. Tourner la jauge d'ajustement de la contre-lame jusqu'à ce que la jauge se rétracte en position de rangement.

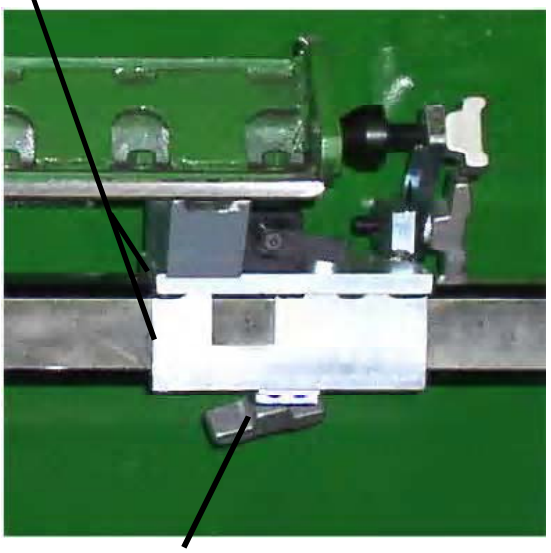

VÉRIFIER QUE L'OUTILLAGE SOIT SERRÉ SUR LES DEUX SURFACES USINÉES DE LA BARRE D'OUTILLAGE
BOUTON DE VERROUILLAGE DU SUPPORT RÉGLABLE DU CÔTÉ DROIT

Figure 21

**! LE CENTRE NE DEVRAIT PAS CHARGER LA CONTRE-BARRE DANS N'IMPORTE QUELLE DIRECTION ET DOIT ÊTRE SERRÉ SUR LA CONTE-BARRE JUSTE ASSEZ POUR TENIR LA CONTRE-BARRE RIGIDE.**

**CONTRE-LAMES AVEC DOUBLE TRANCHANT**

Certains fabricants d'appareils de tonte et certains fabricants de contre-lames fabriquent une contre-lame avec double tranchant comme le démontre la Figure 24.

Parce que les deux surfaces arrondies que ces contre-lames présentent aux aimants il y a une force minime de maintien.

Par conséquent, pour parvenir à une prise solide avec les aimants, vous devez limer la partie inférieure de la contre-lame avec une lime bâtarde plate, tel qu'illustré à la Figure 23.

Vous devez limer avec un trait uniforme sur les deux rayons. Limer jusqu'à ce que vous ayez développé des plats sur les rayons qui sont à un minimum de 3/32 (0,09) [2,3 mm] de large et de largeur uniforme, pour la longueur de l'aimant à chaque extrémité de la contre-lame.

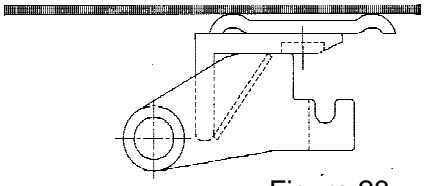


Figure 23

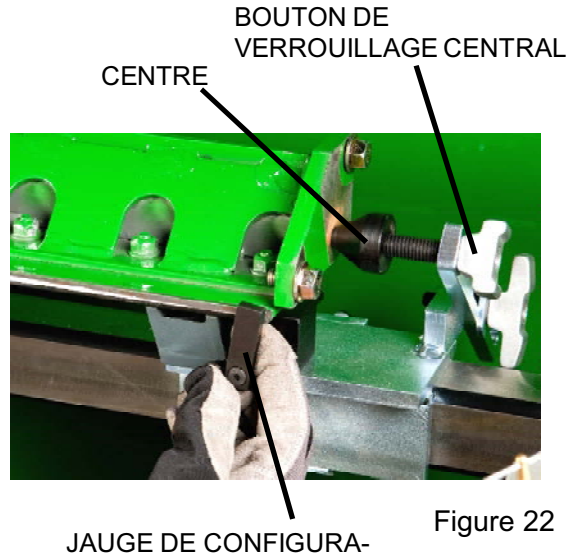



Figure 22

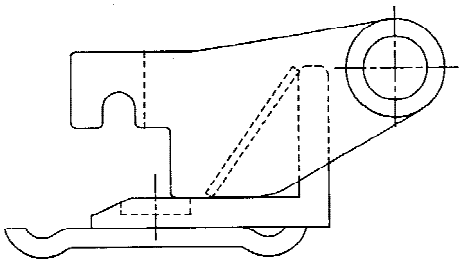


Figure 24.

## MEULAGE DE LA FACE AVANT

**COMMENTAIRE :** Les instructions suivantes supposent que vous avez déjà étudié toutes les sections précédentes de ce manuel.
**REMARQUE :** Sur certaines contre-lames de tondeuse, la face avant est courbée et pourrait donc ne pas avoir besoin d'être affûtée.

**Position de la contre-lame pour le meulage de la face avant (Voir la Figure 25)**
Desserrer la poignée de verrouillage pivotante de la barre d'outillage du côté gauche. Faire pivoter l'ensemble d'outillage à la position face avant (en bas) et régler l'angle de la face avant à la spécification du manufacturier de la tondeuse. Serrer la poignée de verrouillage pivotante de l'outillage.

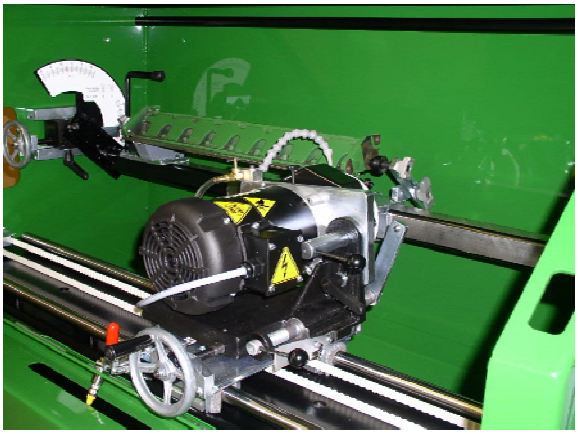


Figure 25

**Vérifier les dégagements et régler les limites de traversée**
Positionner la meulette de sorte que la meule se contente d'effleurer la face avant de la contre-lame. Avec la came verticale et le levier de verrouillage (voir la figure 26), ajuster la meulette de sorte que la jante de la roue de meulage s'étende 1/2 po [12 mm] ou autant que possible au-dessus de la face avant qui doit être meulée.

**SI LA JANTE DE LA ROUE DE MEULAGE NE S'ÉTEND PAS SUR LA FACE DE LA CONTRE-LAME, ELLE MEULERA DE FAÇON INÉGALE ET CAUSERA DES RAINURES SUR LA SURFACE DE LA CONTRE-LAME.**

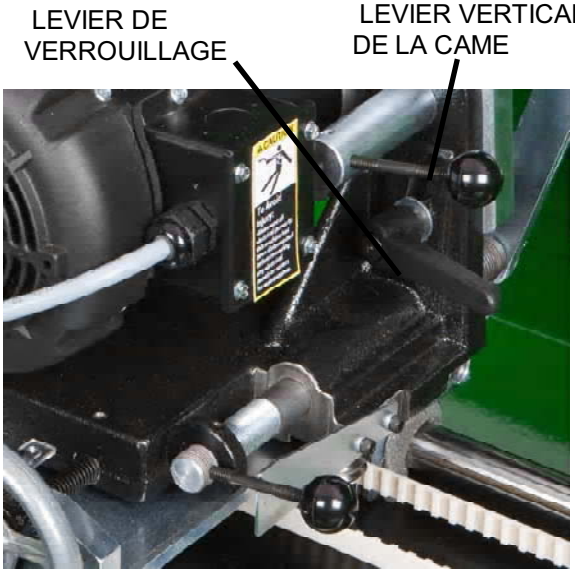



Figure 26

**Vérifier les obstructions :**
1. Sortir la meulette de sorte que la roue ne touche plus la face avant de la contre-lame.
2. Faire glisser les interrupteurs de proximité gauche et droite à l'extrémité la plus éloignée du rail.
3. Régler le potentiomètre de vitesse de TRAVERSÉE au ralenti. Régler l'interrupteur du TRAÎNARD DE TRAVERSÉE à MARCHE. Traverser le traînard vers la gauche jusqu'à ce que la zone de contact de la meule soit environ 1 po en dehors de la zone de la contre-lame à meuler, puis tourner le potentiomètre de traversée à zéro. Être prêt à arrêter la traversée plus tôt s'il y a une obstruction entre la meule et la contre-barre.

Avec le traînard toujours dans la position déterminée à l'étape 3 ci-dessus, faire glisser l'interrupteur de proximité de gauche jusqu'à ce que sa lumière DEL s'allume.

Retraverser vers la droite jusqu'à ce que la meule atteigne le point où elle couvre toute la surface à meuler et passe ce point par 1 po [25 mm] ou plus si possible. Ensuite, régler le commutateur de proximité droit de la même manière.

**REMARQUE :** La zone de la meule en contact avec la contre-lame est sur le côté gauche de la roue. Lors du meulage de l'extrémité gauche de la contre-lame, la zone de la roue qui ne communique pas avec la contre-lame sera néanmoins au dessus de la contre-lame. Voir la figure 27. Quand vous allez à l'extrémité droite de la meule, la roue traverse complètement hors de la contre-lame.

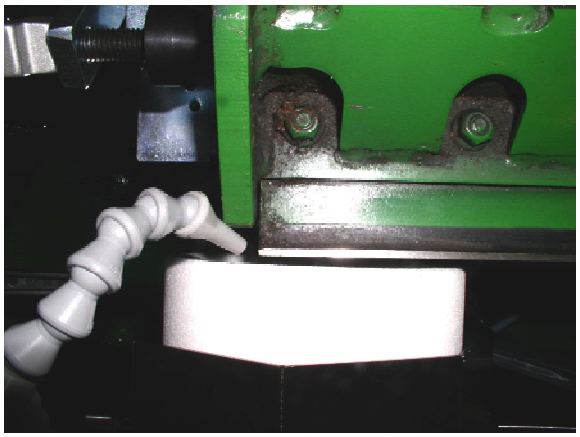


Figure 27

Suivre la procédure d'alignement à la page suivante avant de meuler la contre-lame.

**ALIGNEMENT DE LA CONTRE-LAME**

Après avoir sécurisé la contre-lame sur l'ensemble de support d'outillage, la face de la contre-lame doit être alignée à la meulette. Utiliser le volant d'ajustement de l'outillage gauche pour aligner la contre-lame à la meulette.

**L'alignement est réalisé touchant la contre-lame avec la meule.**

Avec la contre-lame réglée à l'angle approprié, déplacer la meulette à l'extrémité droite de la contre-lame. Maintenant, tourner le volant d'alimentation jusqu'à ce que la roue touche *à peine* la contre-lame au mentonnet d'extrémité de la face du couteau sur une contre-lame utilisée, ou la pleine face du couteau sur une nouvelle contre-lame. Sur une contre-lame utilisée si vous souhaitez meuler pour correspondre à la contre-lame usée, alors toucher la meule au mentonnet d'extrémité. Voir la figure 28.

Ensuite, déplacer la meulette à l'extrémité gauche de la contre-lame. Maintenant, sans bouger la meulette d'alimentation, régler l'ajusteur de la barre d'outillage du côté gauche jusqu'à ce que la meule touche *à peine* le mentonnet d'extrémité de la contre-lame ou la face du couteau sur une contre-lame utilisée, ou la pleine face du couteau sur une nouvelle contre-lame. Encore une fois, sur une contre-lame utilisée si vous souhaitez meuler pour correspondre à la contre-lame usée, toucher la meule au mentonnet d'extrémité. Voir la figure 29. Parce que lorsque vous réglez le côté gauche, le côté droit se déplace également une une petit peu, vous devrez aller à droite et à gauche à plusieurs reprises pour vérifier que vous faites *à peine* contact avec le couteau aux deux extrémités. Cela peut être fait pendant le meulage du couteau.

REMARQUES : Ces ajustements sont effectués au volant de gauche, NON PAS au volant d'alimentation de la meulette.

REMARQUES : La méthode recommandée est d'utiliser le mentonnet d'extrémité. L'utilisation du mentonnet d'extrémité aidera à maintenir la contre-lame réelle aux trous de fixation dans la contre-barre.

**MEULE À L'EXTRÉMITÉ DROITE DE LA CONTRE-LAME**

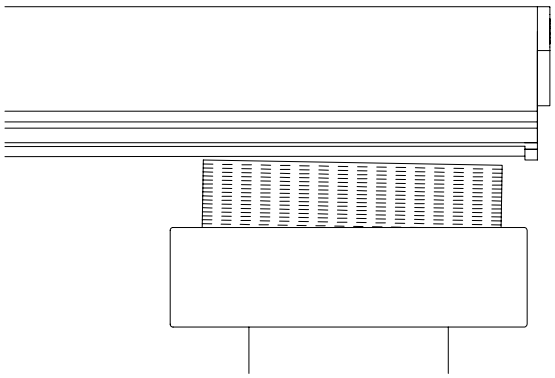


Figure 28

**MEULE À L'EXTRÉMITÉ GAUCHE DE LA CONTRE-LAME**

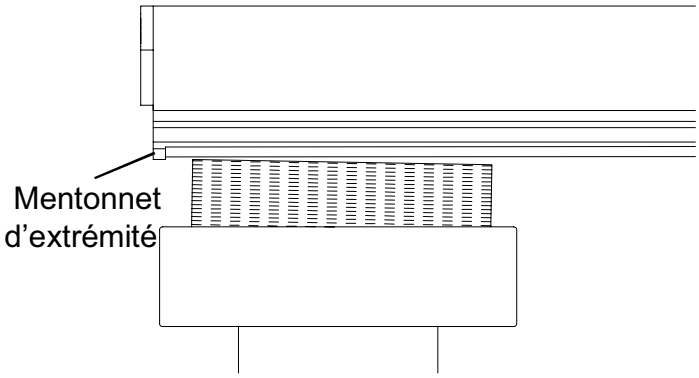



Figure 29

# CONSIGNES D'OPÉRATION (Suite)

## MEULAGE DE LA FACE AVANT (Suite)

**Meuler la contre-lame**
Lorsque vous êtes satisfait de l'alignement de la tête de la meuleuse, commencer à meuler :

**SE RÉFÉRER AUX « RÈGLES DE SÉCURITÉ LORS DU MEULAGE » À LA PAGE 3.**

1. Régler le commutateur de la **MEULE** à MARCHE.

2. Régler l'interrupteur de la **POMPE DE FLUIDE DE REFROIDISSEMENT** à MARCHE. Vérifier que la buse dirige le fluide de refroidissement sur la contre-lame. Figure 19.

3. Régler le potentiomètre de vitesse de **TRAVERSÉE** à environ 15 à 20.

4. Avec la meule sur la contre-lame, pivoter le volant horizontal d'alimentation (dans le sens des aiguilles d'une montre) jusqu'à ce que la roue enlève légèrement le métal de la contre-lame. Il est recommandé d'enlever environ 0,002-0,003 po [0,05 à 0,075 mm] à chaque passage.

   **REMARQUE :** Le cadran d'ajustement horizontal est calibré en incréments de 0,002 po [0,05 mm].

   **REMARQUE :** Lors du processus de meulage, observer le tracé d'étincelle sur toute la longueur du meulage, les étincelles devraient paraitre égales pendant toute la durée du meulage.

   **REMARQUE :** Si une quantité excessive de matériel devra être retirée sur une extrémité de la contre-lame, vérifier votre configuration d'abord, puis la rectitude de la contre-lame. Si elle est courbée ou tordue, la remplacer.

5. Continuer le meulage de la contre-lame de cette manière jusqu'à ce que vous soyez satisfait du meulage de la face avant. Rhabiller la roue lorsque nécessaire. (Voir « Nettoyage/Rhabillage de la meule »)

6. Si vous utilisez une meule vitrifiée, rhabiller la roue avant le meulage **d'éjection** final. Pour les procédures d'éjection, voir le haut de la page 25.

En meulant partiellement les deux surfaces, la face supérieure et la face avant, comme le démontre la Figure. 30, vous réaiguiserez une contre-lame utilisée avec une moindre suppression de métal. Figure 30 démontre également la quantité de matériel qui serait supprimé si vous meuliez la face supérieure jusqu'à ce qu'elle soit aiguisée. Le meulage partiel des deux surfaces est la méthode préférée pour la durée de vie de la contre-lame.

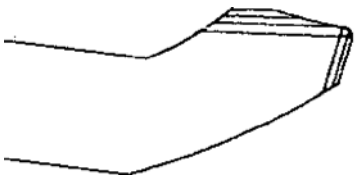


Figure 30

**COUPER L'INTERRUPTEUR DE LA POMPE DE FLUIDE DE REFROIDISSEMENT AVANT DE COUPER LA MEULE, POUR PERMETTRE À LA ROUE DE TOURNER À SEC. SI LA ROUE CONSERVE TROP DE FLUIDE DE REFROIDISSEMENT, ELLE SERA DÉSÉQUILIBRÉE À NOUVEAU LORSQUE VOUS ALLUMEZ LE MOTEUR DE MEULAGE.**

**MEULAGE DE LA FACE SUPÉRIEURE**
**REMARQUE :** Les instructions suivantes supposent que vous avez déjà étudié toutes les sections précédentes de ce manuel.

**Position de la contre-lame le meulage de la face supérieure (Voir la figure 31)**
Lors de la rotation de la face de meulage avant à la face de meulage supérieure, la meulette doit faire marche arrière pendant trois tours complets. Faire pivoter l'ensemble d'outillage à la position face supérieure (haut) et régler l'angle de la face supérieure aux spécifications du manufacturier de la tondeuse.

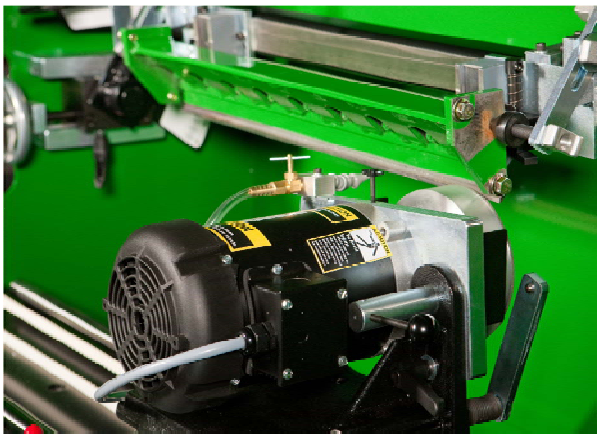


Figure 31

**Vérifier les dégagements et régler les limites de traversée**
Positionner la meulette de sorte que la meule*se contente* d'effleurer la face supérieure de la contre-lame. Vérifier si la jante de la meule est étendu 1/2 po [50 mm] au-dessus de la face supérieure de la contre-lame. Si vous avez meulé la face avant la plupart du temps ce sera correct. Si non, avec la came verticale et le levier de verrouillage, ajuster la meulette. Voir la figure 32. Si la forme de la contre-barre interfère avec le carter de meule ou la meule vous aurez besoin de faire des ajustements. Voir page 18.

**SI LA JANTE DE LA ROUE DE MEULAGE NE S'ÉTEND PAS AU-DESSUS DE LA FACE DE LA CONTRE-LAME, ELLE MEULERA DE FAÇON INÉGALE ET CAUSERA DES RAINURES SUR LA SURFACE DE LA CONTRE-LAME.**

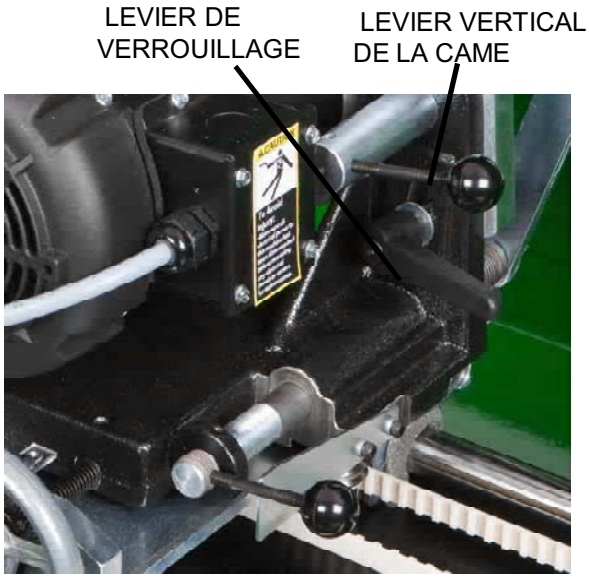



Figure 32

Vérifier les obstructions :
1. Sortir la meulette de sorte que la roue ne touche plus la face supérieure de la contre-lame.

2. Si vous avez meulé la face avant la limite de déplacement devrait toujours être correct, mais vous devriez toujours vérifier l'absence d'interférences comme décrit ci-dessous. Si vous n'avez pas meulé la face avant, suivre la procédure complète ci-dessous. Faire glisser les interrupteurs de proximité gauche et droite à l'extrémité la plus éloignée du rail.

3. Régler le potentiomètre de vitesse de TRAVERSÉE à 10. Régler l'interrupteur du TRAÎNARD DE TRAVERSÉE à MARCHE. Traverser le traînard vers la gauche jusqu'à ce que la zone de contact de la meule soit environ 1 po en dehors de la zone de la contre-lame à meuler. Tourner le potentiomètre de traversée à zéro. Être prêt à arrêter la traversée plus tôt s'il y a une obstruction entre la meule et la contre-barre.

Avec le traînard toujours dans la position déterminée à l'étape 3 ci-dessus, faire glisser l'interrupteur de proximité de gauche jusqu'à ce que la lumière DEL s'allume.

# CONSIGNES D'OPÉRATION (Suite)

**MEULAGE DE LA FACE SUPÉRIEURE (Suite)**
Retraverser vers la droite jusqu'à ce que la meule atteigne le point où elle couvre toute la surface à meuler et passe ce point par 1 po [25 mm] ou plus si possible. Ensuite, régler le commutateur de proximité droit de la même manière.

**REMARQUE :** La zone de la meule en contact avec la contre-lame est sur le côté gauche de la roue. Lors du meulage de l'extrémité gauche de la contre-lame, la zone de la roue qui ne communique pas avec la contre-lame sera néanmoins au dessus de la contre-lame. Voir la figure 33. Quand vous allez à l'extrémité droite de la meule, la roue traverse complètement hors de la contre-lame.

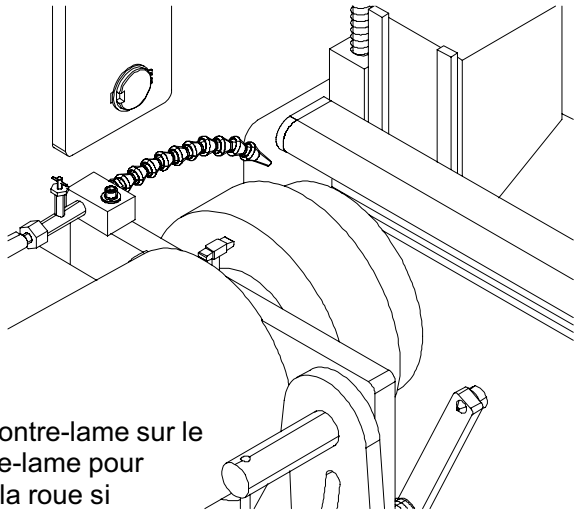


Figure 33

Alimenter la meule jusqu'à ce qu'elle touche très légèrement la contre-lame sur le côté gauche. Maintenant traverser à l'extrémité droite de la contre-lame pour assurer que le côté droit n'est pas plus près de la meule. Retirer la roue si nécessaire jusqu'à ce que vous puissiez parcourir toute la longueur avec un très léger contact au point le plus proche.

**Meuler la contre-lame**
Aligner la contre-lame selon la procédure étiquetée ALIGNEMENT DE LA CONTRE-LAME.

**REMARQUE : L'alignement de la face supérieure est totalement indépendante de l'alignement de la face avant et DOIT être faite.**

Lorsque vous êtes satisfait du déplacement et de l'alignement de la meulette, commencer à meuler :

**SE RÉFÉRER ÉGALEMENT AUX « RÈGLES DE SÉCURITÉ LORS DU MEULAGE » À LA PAGE 3.**

**REMARQUE :** À ce stade, vous ne connaitrez pas la condition de la meule après l'emploi précédent. Toujours nettoyer ou rhabiller la roue avant de meuler. Voir la section sur le Nettoyage / Rhabillage de la meule.

1. Régler la MEULE en position MARCHE.
2. Régler l'interrupteur de POMPE DE FLUIDE DE REFROIDISSEMENT à MARCHE, et vérifier que la buse dirige le fluide de refroidissement sur la contre-lame. Voir la figure 33.
3. Régler le potentiomètre de vitesse de TRAVERSÉE à environ 15 à 20.

   **REMARQUE :** Si une quantité excessive de matériel devra être retirée à une extrémité, vérifier votre configuration d'abord, puis vérifier la rectitude de la contre-lame. Si elle est courbée ou tordue, la remplacer.

4. Avec la meule sur la contre-lame, pivoter le volant horizontal d'alimentation (dans le sens des aiguilles d'une montre) jusqu'à ce que la roue enlève légèrement le métal de la contre-lame. Il est recommandé d'alimenter approximativement 0,002 à 0,003 po [de 0,05 à 0,075 mm] à chaque passage.

   **REMARQUE :** Le cadran d'ajustement horizontal est calibré en incréments de 0,002 po [0,05 mm].

   **REMARQUE :** Lors du processus de meulage, observer le tracé d'étincelle sur toute la longueur du meulage, les étincelles devraient paraitre égales pendant toute la durée du meulage.

   **REMARQUE :** Si une quantité excessive de matériel devra être retirée sur une extrémité de la contre-lame, vérifier votre configuration d'abord, puis la rectitude de la contre-lame. Si elle est courbée ou tordue, la remplacer.

5. Continuer le meulage de la contre-lame de cette manière jusqu'à ce que vous soyez satisfait du meulage de la face supérieure. Rhabiller la roue lorsque nécessaire. (Voir « Nettoyage/Rhabillage de la meule »)
6. Si vous utilisez une meule vitrifiée, rhabiller la roue avant le **meulage d'éjection** final.

# CONSIGNES D'OPÉRATION (Suite)

**MEULAGE DE LA FACE SUPÉRIEURE (Suite)**

Lors des passes d'éjection, alimenter la meule seulement environ 0,001 po [0,025 mm], puis laisser la meule s'éjecter. Pour l'éjection, toujours traverser la meulette de 10 à 20 passes sans alimenter la meulette. Pour obtenir le meilleur meulage de face supérieure, régler le bouton de TRAVERSÉE à vitesse lente pour ce meulage d'éjection final. Ce procédé améliore la finition de la surface de meulage et améliore la qualité du meulage.

**REMARQUE :** Ce que vous cherchez est une « quasi-éjection » - une réduction d'environ 99% des étincelles de meulage normal. Ne pas continuer l'éjection jusqu'à ce qu'il n'y ait **pas d'étincelles**, car cela pourrait prendre un temps extrêmement long.

**ÉTEINDRE L'INTERRUPTEUR DE LA POMPE DE FLUIDE DE REFROIDISSEMENT AVANT DE COUPER LA MEULE. CELA PERMETTRA À LA ROUE DE TOURNER À SEC. SI LA ROUE CONSERVE TROP DE FLUIDE DE REFROIDISSEMENT, ELLE SERA DÉSÉQUILIBRÉE LORSQUE VOUS ALLUMEZ À NOUVEAU LE MOTEUR DE MEULAGE.**

**ENLEVER LA CONTRE-LAME**

Pour enlever la contre-lame, tourner l'ensemble d'outillage de la position de meulage de la face avant (vers le bas). Retirer le centre de la contre-barre du côté droit en reculant le derrière du centre aussi loin que nécessaire. NE PAS desserrer le verrouillage des bras; saisir la contre-lame et la retirer des aimants. Si la prochaine contre-lame à meuler est du même type et taille que la précédente, il suffit de la monter et de procéder à la vérification du montage et de procéder à un nouvel alignement. Si la prochaine contre-lame à meuler est d'un type ou d'une taille différente, suivre la procédure d'installation complète.

# PART NUMBER
# NUMÉRO DE PIÈCE
# 5NTBG1507903

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